# DOMESTIC ENGINEERING

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BY

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**Suggestion:**
Cut out; frame neatly; put in show window; change weekly.

Somewhere in this town is a man who is going to build a better residence than any we now have. In this residence the plumbing and heating installations should be of such a character that every article used therein will be the best of its kind, bear the name of the maker, and be guaranteed to perform its duty satisfactorily. The work of installing these devices should be of the very highest grade, so that the health and comfort of the occupants of the house will be assured. Are we prepared to make this installation? We think we are. Come in and see.

# Plumbing and Heating in Large Houses

There are comparatively few plumbing and heating contractors who have the opportunity of installing work in very large estates, and still descriptions of such installations are of intense interest to them because every man who has a live interest in his business desires to become acquainted with all phases of it, and descriptions and illustrations of such installations are, unfortunately, very difficult to secure and consequently the readers of the trade press find less such literature than is furnished on almost any other class of installation. We consider ourselves, therefore, very fortunate in being able to publish in this issue of "Domestic Engineering" an exceedingly interesting article by Miss Lucy Cleveland, the distinguished authoress of New York City, describing the installation of plumbing and heating in "Fort Tryon Hall," the elaborate residence of C. K. G. Billings, of New York City. The article is accompanied by interesting photographs taken by our own artist, through the kind permission of Mr. Wilson, manager of the estate, to whom we extend our thanks for this courtesy. The architect of "Fort Tryon Hall" is Guy Lowell, of New York and Boston. The consulting and engineering contractor is Milton Schnaier, one of the leaders in the New York trade, and the heating installation was made by Baker-Smith Co., of New York City. To all these our thanks are returned for the many courtesies shown Miss Cleveland in the preparation of the article.

A study of this article, and of others of a like character which we hope to publish in the future, should prove interesting to our readers because of the fact that the rapidly increasing number of colossal fortunes of captains of industry in the United States is permitting the construction of elaborate residences in which the installations of plumbing and heating are extensive and costly. A study of some of the installations which have already been made will place our readers in possession of information which they may be called upon to use at any time. Installations of elaborate plumbing and heating systems are no longer considered luxuries. They are necessities, and installations which ten years ago would have been called elaborate enough for the home of any man, no matter how wealthy, are now expected in even moderate priced homes. Indeed, it is not desirable that there should be an entirely unnecessary volume of expenditure for plumbing installations even in the homes of the very rich. The tendency is rather to multiply the number of conveniences, so that in extensive estates we find bathrooms provided in connection with every sleeping room, both for the master and his guests and for his servants as well. It should be a matter of pride to those responsible for such conditions that for every man's purse and for every condition to be met with, there is on the market, ready for installation, a suitable equipment, sanitation being assured regardless of cost.

# DOMESTIC ENGINEERING in FORT TRYON HALL, N.Y.

Fort Tryon Hall, residence of C. K. G. Billings, Capitalist, at Fort Washington Road and 196th St., New York City.

By Lucy Cleveland

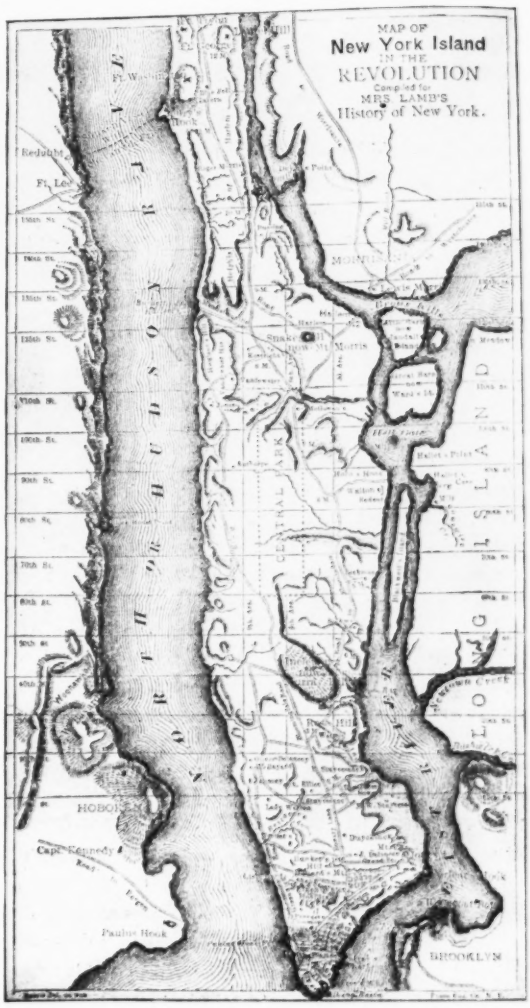
In approaching the imposing residence "built on a rock," Fort Tryon Hall, its first illumining impression and which kindles into high relief brings back like a flash some old words of a Latin poet, yea, and amidst the brilliance of his Alexandrian day, 395 A. D., "Health it is that is a deity presiding over the affairs of men." Fort Tryon Hall is built upon the summit of the rocky plateau called Washington Heights. The first thought of the owner of this unique property in selecting a location that should mean happiness in home, was health. The means to that "health," over and above the accoutrement that altitude and the untainted winds of heaven supply, was the building of the house according to a great architect's benign idea, and the equipment of the home with the best sanitary devices in plumbing, heating and ventilation that could be found in the metropolis of the United States. A notable capitalist thus sets the example for other men to follow in matters of home sanitation. Fort Tryon Hall is a glory as to "location." Granted. But the owner, and his architect and his master artisans added something to this—home sanitation. Fort Tryon Hall overhangs the Hudson, and commands the wide sweep of hill and valley, and all New York. On a clear day from the observation tower of the Hall, Blackwell's Island in the East river can be seen; and far up to the north—up the Hudson—the shining breadth of the river, near Albany! Directly opposite the grounds are the Palisades of the Hudson. Fort Tryon Hall is built on the rock of the Silurian period of the Paleozoic Age, into which without doubt great eruptive masses penetrated—igneous rock. Practically the entire basement of Fort Tryon Hall had to be blasted, and since the house site is the highest point in the region, no waterproofing was necessary; simply drains were laid at the low levels to carry off any surface water which might gather about the foundations.

THE HISTORIC NAME.

"Fort Tryon" Hall is a historic nomenclature. In the days of the Revolution when battle swarmed and fought and cursed and bled over this crest, where valor loomed upon valor, this site—Fort

The Remains of Fort Tryon as they appeared in 1858. Today the flag staff which marks the location of Fort Tryon is planted here.

Tryon—was one of the outposts of the British who occupied these heights. Fort Tryon was named after the British Governor of New York in 1776, Sir William Tryon, Bart. A stone's throw away—as the bird flies—was Fort Washington, where the site of an old redoubt can still be seen. Directly opposite Fort Tryon were the guns of Forts Lee and Constitution of the Revolutionary forces. The flagstaff of Fort Tryon Hall, where today Old Glory goes to the breeze, is planted on the identical knoll of ground, the old breastworks, where stood "Fort Tryon" under the rule of His Most Gracious Majesty George III. Entering the grounds of Fort Tryon Hall—Twenty-five acres in extent—one perceives to the right the stately garage of the many touring cars of many makes, and the stables. These stables were erected three years before the "Hall" itself was built, two years ago; for Mr. Billings, who was the owner of the famous Lou Dillon, was at that time interested in matters pertaining to the turf. Imposing as is the coup d'oeil of the Hall, one scarcely credits its extent, from the exterior. The "observation tower" part of the house was built first. The addition, with its stately "court," came later. Going up the marble steps, one enters the vestibule. To the right and left of the vestibule, a coat closet and writing room. A short flight of steps leads up into the large hall paved with marble. Stately staircases of marble to right and left of the grand entrance lead up to the second story. But what is this directly before us! The first impression is of light and sunlight and air and the coming towards us of something in the track of Charm. It is the great interior "court," tiled with marble, brilliant with the green of palms, murmurous with the silver fall of a fountain, and glistening with light. It is the *patio* of Spain that was modeled on the romantic court of the Moors. The "living room," and the reception room, and the grand entrance hall, and the billiard room, and the




Map of New York Island at the time of the Revolution, showing at the extreme top on right bank of Hudson River, the location of Fort Tryon, one of the outposts of the British.

dining room all open on this *patio,* which has a gallery of fretted marble supported by pillars. On this upper gallery, or arcade, the bedrooms in the second story open. Thus it will be seen what natural provision in the mind of the architect of Fort

Tryon Hall was made for the entrance of God's sunlight and fresh air—the house built around this *patio*. One notes, in the reception room, the artistic grouping of electric lights *around* each notable painting. The "lighting" is no aimless affair at Fort Tryon Hall. In the living room (a beautiful salon) are the great organ and the swell organ, the echo organ and the choir organ, whose sound pours into the *patio*. These four organs can be played from one console in this salon, or from the console upstairs. The organs are from the Æolian Company, of New York City.

### The Second Floor.

Passing on up the marble stairs, from the grand entrance hall, one comes to the bedrooms of the family. Spacious, each with many windows. Each has hardwood floor, rounded at the corners—forbidding the possibility of dust lurking in crannies. Each room has its bathroom—and here again there has been a noble outlay of money to secure the best income in the world to draw upon—Health. The plumbing fixtures used throughout the entire mansion are of the manufacture of the Meyer-Sniffen Company, of New York City. The bath tubs are of solid porcelain, of the "built-in" pattern. The faucets are back of the tub and are silver-plated. The towel bars are of glass set in silver plate. The needle showers are set into a corner of the bathroom, and are of silver-plated metal; each cost $800. Each is a four-sided shower, the enclosure being made of plate glass and silver-plated trimmings, with large doors. Each needle shower is made with six large rings which encircle the body; each has a large twelve-inch head spray, with silver sprays and douche. On the exterior of the enclosure are a series of standpipes, valves and thermometers, so that the temperature of the water can be arranged before entering the enclosure of the needle shower. The bather can also change the temperature by using devices from the interior of the enclosure. The walls from ceiling to floor behind these needle showers are made of milk-white glass, all in one piece. The shower receptors are set into the floor and are of marble; they are twelve inches thick, and are dished out to a depth of six inches. These marble shower receptors weigh 1,200 pounds each. The basins in each bathroom are of "Blanko-P" marble, two inches thick and eight feet long, having deep aprons, and being set upon glass basin legs with white metal claw feet—at the bottom and top. Above each basin is a closet with mirror doors, and whose shelves are of plate glass. The robe hooks around the bathrooms are of silver-plated brass. In addition to the solid porcelain tub and the needle shower, each bathroom has a sitz bath, foot bath and bidet of solid porcelain. The walls are tiled from floor to ceiling. The floor is mosaic tiling; the door and window trimmings are of moulded tile. Not the slightest particle of wood has been used in the construction of these bathrooms.

### Other Bathrooms.

There are eight guest rooms in the mansion, distributed on the second and third floors. Each has its bathroom. Each bath tub is of solid porcelain with overhead shower and rubber curtain. The walls of the bathrooms are tiled, and the basins the same as in the family's bathrooms. The water closets are of the "Flushometer" pattern, as in the other bathrooms, with trimmings all heavily silver plated. In the servants' quarters (the housemaids') there are seven rooms. These seven rooms have access to two bathrooms each equipped with solid porcelain tub, overhead shower, marble basin, closet and electric lighting.

Every solid door to every bedroom throughout the entire mansion has an additional slat door. The advantage of this is seen for the summer months, as well as for free current of air—ventilation—in winter.

### The Plumbing Installation.

The plumbing work throughout Fort Tryon Hall was done by the Milton Schnaier Co., 347-349 Columbus avenue, New York City. It is a masterpiece of work. The water supply system consists of the following: Two-inch tap connected to public street service water main; a three-inch water main from this point extended into the premises and connected to a double filter of the "Roberts" manufacture, which filters all the water on the premises. From this filter a three-inch connection is brought to the 1,000-gallon iron storage tank, which is made dustproof by dustproof cover. This tank is ventilated by means of a ventilating pipe extended up through the roof of the mansion. From this tank a three-inch pipe is connected to the centrifugal pump capable of discharging 1,000 gallons of water per minute. The discharge of this pump is connected to a 2,000-gallon steel pressure drum. The pressure drum is also connected to an air compressor. The pressure drum contains two-thirds water and one-third air, the air being compressed at a pressure of 60 pounds. The centrifugal pump and air compressor are both governed by an automatic "Cutler-Hammer" electric starting and stopping device. The water pressure pump, or

centrifugal pump, pumps water into the pressure drum, cutting in at 40 pounds and cutting out at 60 pounds, there being a difference between the cutting in and cutting out pressures of 20 pounds. The air compressor compresses the air in this pressure drum to an extent of 20 pounds. The "Cutler-Hammer" devices govern and control the cutting in and cutting out of the air compressor and water pressure pump, requiring no manual labor of any kind. The hot-water drum, which furnishes hot water to the premises, is a large drum with a steam coil in it for heating water, while there is also a hot-water heater for coal, for use in the summer months. This pressure drum is connected to the cold-water pressure drum by a two and one-half inch pipe, with shut-off valves and check valves to prevent a back pressure into the cold-water drum. There are two hot-water drums, both being connected in a similar manner as described above. One of the hot-water pressure drums furnishes hot water for the laundry, servants' and kitchen quarters, the other pressure drum supplying hot water to the living quarters of the owner. The hot-water drums are both furnished with thermostats governing the temperature of the water. These different water supply appliances are situated in a compact portion of the basement, grouped in their several locations, but all together in one section (of the basement), in the center of which is a large marble switchboard and gauge board. On this switchboard the automatic electric controlling devices are arranged with pilot lights, two thermometers, one for each hot-water drum, hot and cold water pressure gauges and electric gauges showing the operation of the electric "Cutler-Hammer" controlling devices, as are also separate hand switches

Laundry in Fort Tryon Hall, residence of C. K. G. Billings, New York City, showing termination of row of eight laundry trays; special tray for wringing; flat iron heater; steam generator for furnishing steam to clothes boilers. Photograph by our Special Artist.

for cutting out each part of this system, in the event of the automatic devices failing to work. The water supply lines are all of brass pipe, tin lined, and connected with brass fittings. Each line at its bottom is controlled by means of valves and check valves, also drips for emptying each line separately.

### Fire Lines.

There are also a number of fire lines with fire outlets and nickel plated brass fire equipments of the Jiffy Fire Hose Rack Company's new fire racks, made at 727 Seventh avenue, New York City. These hose racks, of which there are three on each floor, are very novel and complete. Usually such fire racks are concealed, as they do not add much to the appearance of a splendid residence such as Fort Tryon Hall; but in this instance they are exposed and quite a decoration, as their manner of construction has been a careful matter of consideration. The operation of these racks is instantaneous. In case of fire it is always necessary—no matter what racks are used, to grasp the nozzle. But in the "Jiffy" rack the grasping of the nozzle means the operation and releasing of the hose automatically. The hose, when dropped from the rack by grasping and pulling the nozzle, falls in fan-like shape on the floor, and the operator needs to pay no further attention to the hose, but can simply advance to the place of the fire, as the hose opens and follows the operator by the force of the person carrying the hose.

Service Tunnel in Fort Tryon Hall, residence of C. K. G. Billings, New York City, for electric light wires, telephone wires, gas pipe, water pipe and house drain. Photograph by our Special Artist.

### Water Pressure.

The pressure drum system will permit of a pressure sufficient to carry a stream of water over the top of the observation tower in a continuous flow at a pressure of 60 to 80 pounds, by reason of its automatic operation. The grounds around the mansion at different points are furnished with fire hose hydrants, similar to those used by the Fire Department in the public streets, but of a more ornamental pattern. These hydrants are connected to a four-inch private water supply main covering acres of ground. As before stated, the centrifugal pump is capable of throwing a stream at a pressure of 60 to 80 pounds, or 1,000 gallons per minute. In the butler's pantry is a thermostat which—when the temperature indicates 160°—communicates directly with a bell in the garage, and with the firm alarms all over the house. The manager of the estate, G. L. Wilson, has frequent fire drills of the thirty-five men servants under him—electrician, carpenters, chauffeurs, landscape gardener, under gardener, etc. The eighteen housemaids are also trained for the emergency of conflagration.

### Heating and Ventilating.

The heating and ventilating plant was installed by the Baker-Smith Co., 83 W. Houston street, New York City. The processes are absolutely unique. The heating of bathrooms, bedrooms, the first floor of the salons and the laundries—the whole house—is by low-pressure indirect hot water. There are two large brick-set heaters in the basement; these are non-explosive, made of wrought iron. The flues, or ducts, are individually labeled, "Bedroom 1," "Bedroom 2," Guest Room 3," etc., and these supply heat to each room, each room is controlled separately, each having its own flue and indirect radiator. Each room can have its heat shut off in the basement, or adjusted, without interfering with any other room in the house. The bathrooms and minor rooms not supplied with open fireplaces have artificial ventilation by means of registers (in ceiling or wall). Galvanized iron fresh air ducts, in the basement, take the air in to the indirect heating radiators from out of doors. The ventilating ducts are connected together in the attic and discharge out of doors by means of a

large ventilating fan with direct connected electric motor and rheostat adjusted for variable speeds.

This heating plant furnishes heat to the rooms of the five stories of the observation tower, and to the servants' quarters in this older part of the mansion. In these servants' quarters again is noted the bathroom with porcelain tub, etc. The heating plant is regulated by the Johnson temperature control.

Refrigeration Plant in Fort Tryon Hall, residence of C. K. G. Billings, New York City. Photograph by our Special Artist.

### The Basement.

The cellar (basement) walls and floor are white as ivory. They are Portland cement. Again in the basement is perceived a bathroom with porcelain tub, porcelain basin and closet of the "Flushometer" pattern. It is an airy room, with large window. A flight of steps from the basement leads down into a long tunnel through which runs the main sewer pipe. This pipe leads out to the main city sewer. The tunnel is a network of wires—electric light wires, telephone wires and gas pipes. The sewer pipe is of cast iron.

### The Laundry.

In the basement is the laundry and the ironing room. The laundry has exceptionally large wash tubs, eight in a row, with brass traps and wastes, certain tubs having brass steam coils for the purpose of boiling clothes in the tubs. There is a series of gas ranges and iron stoves, and a large steam generator opposite the steamtight tubs. The laundry has a laundry drier for drying clothes in bad weather. The floor was formerly of concrete, but a wooden flooring was later laid, being adjudged more sanitary in the way of warmth—hence, comfort to the worker (and this always gets better work done). There is a slat floor in front of all the tubs. A drain under this slat flooring leads into the main sewer pipe that runs through the "tunnel" mentioned above. There is a grand

clothes drying yard outside the laundry. The laundry is lighted by electric light and equipped with hand wringers and a gas-heated mangle.

### Garbage House.

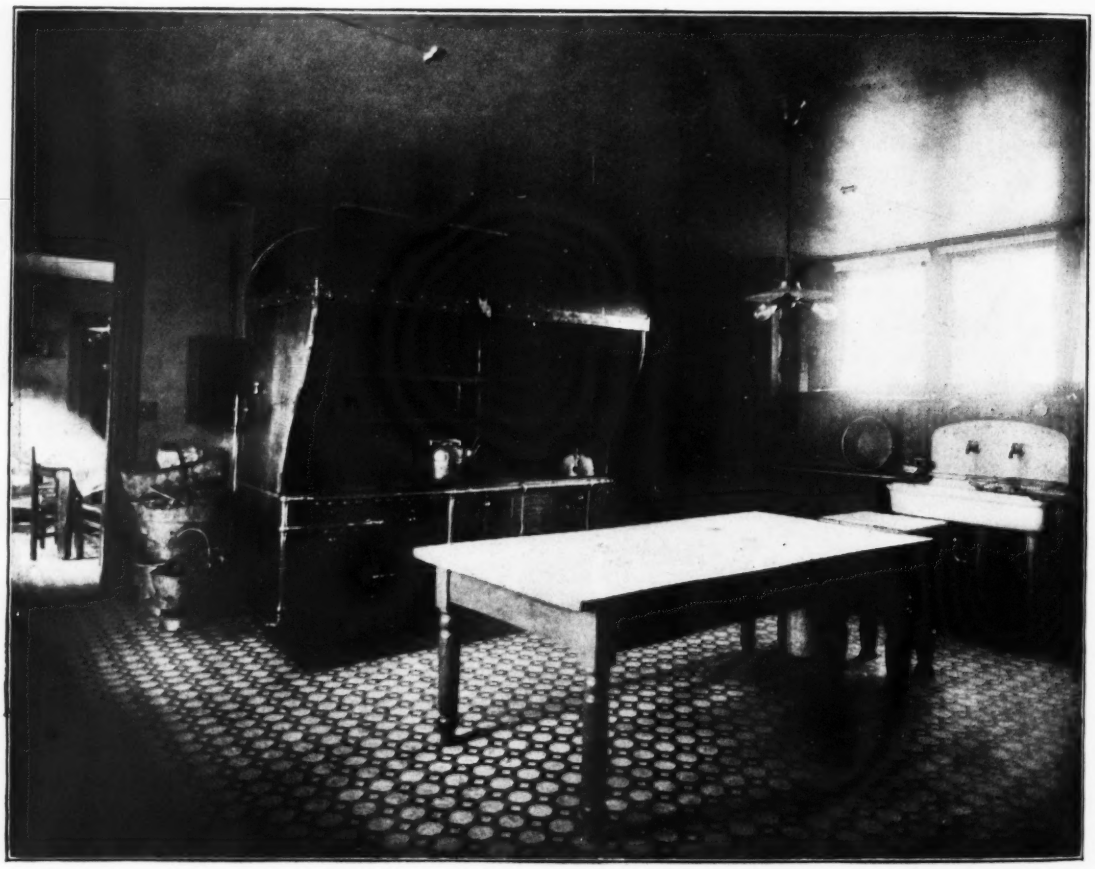
Beyond the large back yard and down a flight of steps is the garbage house. It is in three divisions, (1) papers, (2) garbage, (3) ashes. It has latticed woodwork walls and no roof. There is a hot and cold water device outside this house for washing the garbage cans; and the garbage carts drive up the hill by a service road.

### Ice Plant.

The ice made on the premises is made by the ammonia process. In the basement are the refrigerating rooms for the storage of fresh meats and of other foods. The ammonia gas plant is actuated by electric motors, the coils connecting with the cold storage closet.

### The Kitchen.

Returning to the first floor and passing through the service hall, one comes into a wing of the house where are the kitchen and its suite of rooms and pantries. Here the prevailing note that is struck is light and air; one might almost say, "Sweetness and light," and not to be caviled at. Broad windows everywhere. The floor of the kitchen is



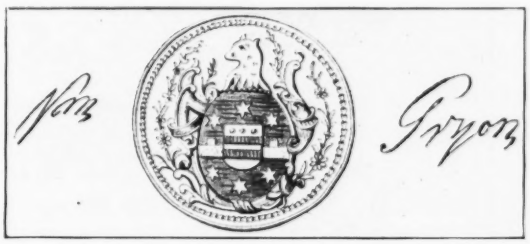
Kitchen in Fort Tryon Hall, residence of C. K. G. Billings, New York City; combination gas and coal range; ventilated hood; servants' dining hall adjoining kitchen. Photograph by our Special Artist.

wood, the walls are wainscoted with canvas, and the canvas is painted. The large combination range is for gas and coal, ovens on either side; the broilers are on the gas side, the bake ovens on the coal side. Connected with the range is a "starting box" (electrical) where there is a ventilating duct that connects with two large fans directly over the range. These, set in motion, start the "fan" in the attic, and all odors of cooking are "pulled up" and discharged out of doors. The scullery leads out

of the kitchen. The servants' dining hall adjoins the kitchen. The butler's pantry leads out of the kitchen; it has a refrigerator cooled by the ammonia gas process; it has copper-lined sinks, and the fixtures are nickel plated. Hardwood closets line the walls. The service to the beautiful octagonal breakfast room and to the dining room is through the butler's pantry. In this wing of the mansion there are two men servants' rooms, with bathroom; and there is a water closet.

The writer regrets that the limitations of space forbid but a glimpse of the observation room in the Observation Tower, to which the electric elevator ascends. It is on the fifth floor of the tower. The walls are windows—and what a sweep of view right on to the gleam upon the Highlands at West Point. In this room are kept some trophies which have been found on this classic ground—Fort Tryon. Here are cannon balls and iron handshackles, grim mementoes of old grapple. And it were pleasant to linger on the terrace overlooking the Hudson. In summer, awnings are stretched over this terrace, and tea is served here. In the evening, it is bright with colored lanterns—a bit of twinkling fairyland above the misty river, while the great organ's many voices open doors into the southern scenery of its soul. But the one impression that lingers with glad concentration is that of health, breezy health through the benefits of sanitation. Surely the motto of the gifted architect of Fort Tryon Hall, and of its master artisans must be: *"Præsto et persto!"* (I excel and I persevere!)

Note.—The writer desires to make her acknowledgements to C. K. G. Billings for all graceful and gracious permissions granted; and to G. L. Wilson, the able and courteous manager of Mr. Billings' estate; to Guy Lowell, of New York and Boston, architect of Fort Tryon Hall; to Milton Schnaier, consulting and contracting engineer and plumber; to Mr. Witherspoon, of the Baker-Smith Co., for courteous aid and data in the preparation of this article.



Seal and Autograph of Sir William Tryon, Bart., British Governor of New York after whom Fort Tryon was named.

## Properties of the Air.

*Pure Air.*—100 cubic feet consists of 20.91 cubic feet oxygen, 79.09 cubic feet nitrogen; 100 pounds consists of 23.15 pounds oxygen, 76.85 pounds nitrogen.

*Air in nature* contains, besides oxygen (O), Nitrogen (N), vapor of water ($H_2O$), carbonic acid ($CO_2$), argon, traces of other kinds of gases and solid ingredients, such as dust, etc.

*The average value of the carbonic acid in the air* is: In the open country c = 0.3 $^{0}/_{00}$; in cities c = 0.4 $^{0}/_{00}$.

(The composition of the air given in volumes.)

*The average pressure of the air* at 62° Fahr. sea level is: 1 atmosphere, 14.7 pounds per square inch, 2,116.3 pounds per square foot, 30 inches of mercury, 33.947 feet of water.

*The expansion of air with the* increase of the temperature of 1° Fahr. $= d = \frac{1}{491.2} = 0.002036$ of its volume at 30° Fahr.

*The law of Gay-Lussac.*—The volumes of air of equal weight at a constant pressure are proportional to its absolute temperatures:

$V_1 : V_2 = T_1 T_2$

$V_1 : V_2 = [1+d\ (t_1 - 32)\ ] : [1+d\ (t_2 - 32)\ ]$

$V_1$ and $V_2$ = Volume of air.

$T_1$ and $T_2$ = Absolute temperature ($459,2+t°f$)

$T_1$ and $T_2$ = Temperatures in Fahrenheit.

[Called Mariotte's law in Europe and Boyle's law in United States.]

*Mariotte's Law.*—The volumes of air of equal

weights are inversely proportional to the absolute pressures:

$V_1 : V_2 = P_2 : P_2$

$P_1$ and $P_2$ = The absolute pressures.

Both the above named laws have general application for gases and superheated vapors.

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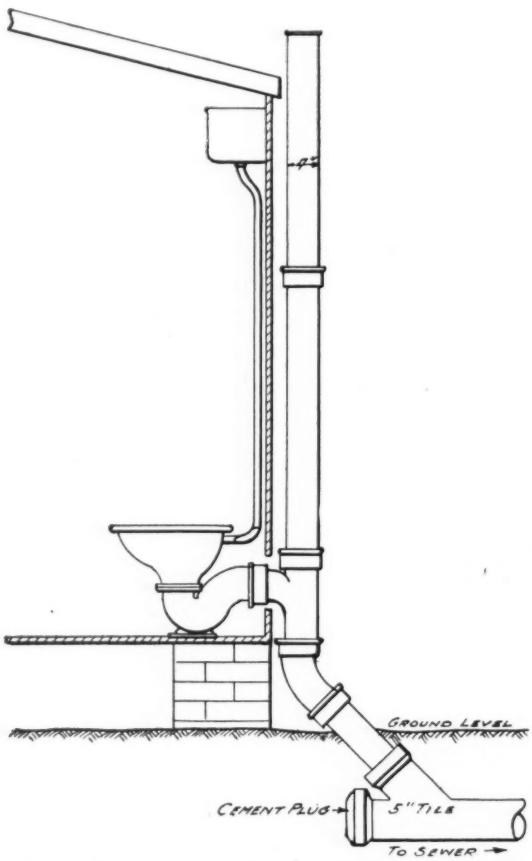
# Questions and Answers

## YARD CLOSETS.

**Mobile, Ala.**—Will you please give an illustration of a style of construction of a yard closet which would prove sanitary in this warm country? R. T. U.

**Answer.**

Yard closets should not be encouraged, but in many instances it is not possible to proceed from the absolutely unsanitary and unapproved privy vault to the water closet located in the bath room inside the house; and there are certain places in warm climates where yard closets would be a vast improvement over the primitive method of disposition referred to. In countries where freezing is not to be expected it is permissible to use a construction similar to that illustrated herewith; but this represents neither a high type of fixtures nor a high type of plumbing, and should never be used except as the next better step than the continued use of the vault. The water supply to this tank should be placed so that it will not freeze and building around closet should protect it from danger of frost. It will be noticed that this style of construction does not provide for any trap between sewer and the opening of the soil pipe, which is led above the roof of the closet building.




Yard closet as recommended for construction in a warm country.

## WHAT CAN BE DONE FOR THIS SWEATING WATER PIPE?

**Richmond, Va.**—To the Editor of "Domestic Engineering." Sir: A friend of mine asked me for a remedy to stop pipes from sweating. The pipe is run on the ceiling and causes much annoyance from the dropping of water. J. D.

**Answer.**

This pipe crossing the ceiling "sweats" because the water in it is cooler than the air which surrounds the pipe. Hence some of the moisture in the air is condensed upon the pipe and the unpleasant result is termed "sweating." Wind the pipe **tightly** with four or five thicknesses of newspaper, covering it over with one or two thicknesses of canvas. Paint the canvas, being sure to have plenty of lead in the paint.

## A RULE FOR FINDING PIPE LENGTHS FOR 45° AND 60° PIPE WORK.

"Domestic Engineering" is indebted to Geo. R. Evans of the plumbing firm of Geo. R. Evans and Co. of San Francisco, Cal., for the following valuable rules regarding 45° and 60° work.

**Rule 1.** For 60° degree work as shown in Fig. 1 on the opposite page. To find the length of the hypothenuse divide the base by the decimal .87.

**Rule 2.** For 60° work as shown in Fig. 1. The altitude equals one-half of hypothenuse.

**Explanation:** In Fig. 1 the measurement 34", divided by the decimal .87, gives 39", or the hypothenuse. In the same figure, the measurement 49¾", divided by decimal .87, gives 57⅛, the hypothenuse.

The measurement 10", divided by decimal .87, gives 11½" the required hypothenuse.

In Fig. 1, the hypothenuse measurement 39", divided by 2 gives the altitude measurement 19½". Likewise hypothenuse measurement 57⅛", divided by 2, gives altitude measurement 28 9/16". Also hypothenuse measurement 11⅛", divided by 2, gives the altitude 5¾".

**Rule 3.** For 45° angles as shown in Fig. 2, also on the opposite page. To find the length of the hypothenuse, divide the base, or the altitude by the decimal .7.

**Explanation:** In Fig. 2 the measurement 35½", divided by the decimal .7, gives 50¾", or the required hypothenuse. Likewise the measurement 14", divided by the decimal .7, gives 20", the hypothenuse.

**Note**—It will be observed in both 45° and 60° figures shown here, that all the measurements are from center to center and in cutting the pipe, a proper proportionate allowance should be made for the different sized fittings.—**Editor.**

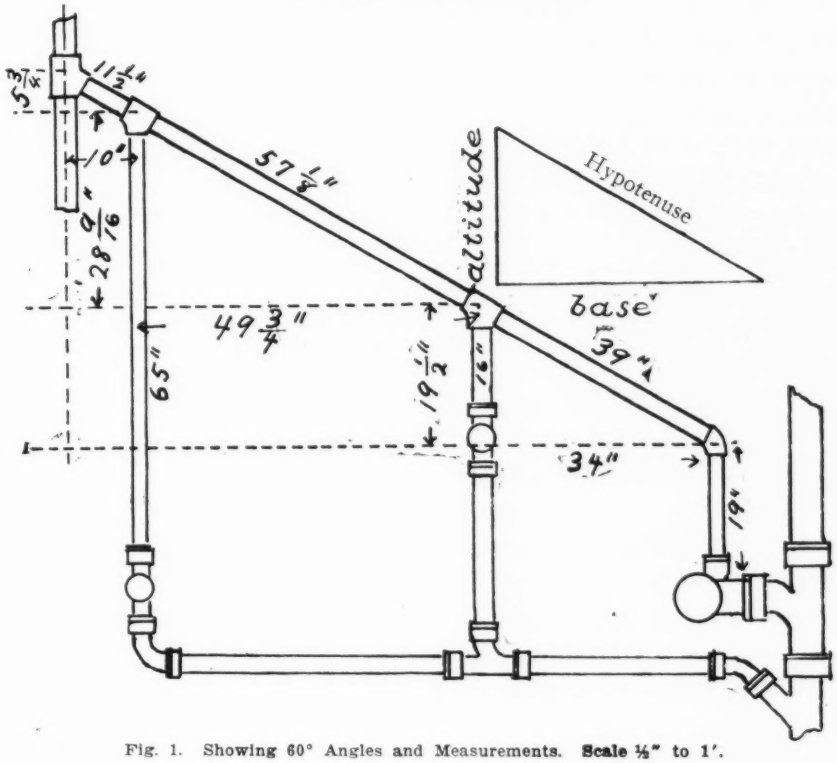



Fig. 1. Showing 60° Angles and Measurements. **Scale ½" to 1'.**

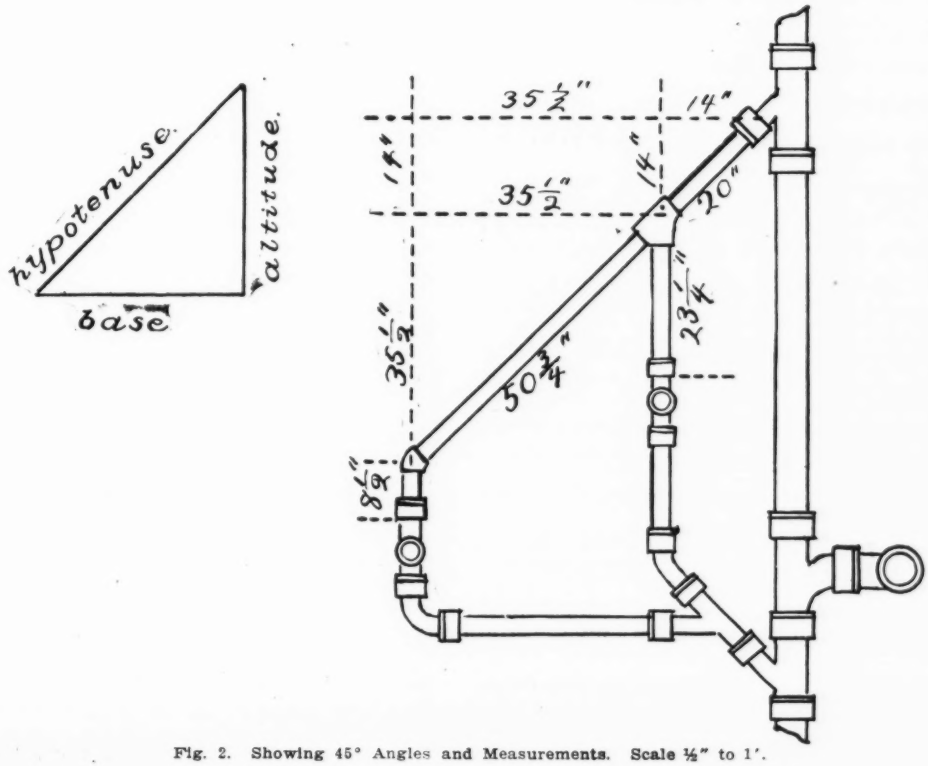



Fig. 2. Showing 45° Angles and Measurements. **Scale ½" to 1'.**

# Troubles a Gas Fitter Meets

By Phoenix.

If sent to locate the trouble of some gas job it will be found that the gas fitter has troubles of his own. In places where the shop does not hire a regular gas fitter, this part of the work may fall to either a fitter or a plumber.

The following troubles to gas jobs may be mentioned:

1. Difficulties with the various fixtures.
2. Leaks in the system of piping.
3. Stopping up of pipes.
4. Freezing.

A fixture may not hang plumb from the ceiling and in such a case is an eyesore which results from the carelessness of the man who ran in the piping system. About the quickest way to remedy this is to unscrew the nipple that comes through the plastering and replace it with a nipple of similar length having on one end a "drunk" or crooked thread and screwing it in until the fixture will hang plumb. Various parts of the different fixtures may give out, or be too loose, requiring tightening but these difficulties can be seen and adjusted quite easily.

A far greater source of annoyance and danger is due to leaks which are likely to appear anywhere on the job and may cause much vexation before they are located. The gas may blow into the room at night and suffocate a sleeping person. An ignorant or careless person going into a room filled with gas mixed with the air in proper proportion will be met with an explosion that may deprive him of his life. The coal gas generally used for the purpose of furnishing light,

**You may know all these things about gas, and again, in the language of my friend Philander Knox, you may not**

if mixed with air in the proportion of one part gas to thirteen parts air, will explode if fire is applied. Never try to find a leak until the room, cellar or house, has been thoroughly aired. Shut off the gas at the meter or curb and wait.

If the gas still accumulates with the meter shut off it may be that the gas escapes from the main or a leak outside and follows up the supply pipe, entering the building around the sides of the pipe that comes through the cellar wall, or the gas may blow in from some other channel. It may be necessary to disconnect the meter entirely and apply the proving pump, thus obtaining a greater pressure, for if the leak is of good size you can generally find it by the hissing sound.

Now if you have been over all the fixtures and meter and the leak has not been discovered examine the piping.

In a new building before the flooring is down, this is a comparatively easy thing to do, but in a furnished house where the flooring must be ripped up it is better to call for a carpenter who knows his business, to remove the flooring. When the leak is found, at such an expense do not take any chances, but repair it thoroughly, removing the pipe if split, or drilling out the sand hole and tapping for the insertion of a plug.

Do not use any cement, which is mighty bad practice anywhere.

A small leak that has defied detection may be found by painting the fittings with rather thin soap suds, and watching the bubbles of air dance through the suds.

It is not difficult to tell when a pipe is partially choked up, as the burner gives a steady light, but little of it. On the other hand, if there is any water in the pipes the lights generally flicker.

A choked up pipe can be blown out by the Service Cleaner, which is an air pump and tank combined, for storing up the air, and contains a stop cock at the bottom for the purpose of letting the compressed air suddenly into the system thus freeing the pipe from any obstruction.

When looking for water in the pipes go over the system and if there are any pipes so located that very cold, or located where freezing cold air will strike them. Remember that this gas contains moisture which will condense on the inside of any pipe so located, and form ice, which will gradually increase in cold weather until the pipe becomes choked, or perhaps stopped up entirely.

All exposed pipes should be thoroughly covered with some good material of a non conducting nature. Look also for any pipe that may be trapped, which would allow the water to gather at that point. The gas goes through such places in bubbles and that is what makes the lights dance and flicker.

This trap permitting an accumulation of water is found sometimes on the ceiling, where a branch has been taken from a tee or ell, and extended for several feet before the drop is put on. In such a case that one particular light might be the only one which gave trouble. The stoppage may also be between the meter and the main, and can be located by removing the plug in the tee where the pipe comes through the cellar wall or pulling off the cap on the drip cup which should be found at this point.

In some parts of the country natural gas has been used as long as it lasted. Those were great times and a flaming jet was found on nearly every corner burning, full head on, day and night. People did not have time to turn off the gas so eagerly were they chasing the bird of freedom stamped on the elusive cart-wheel. Natural gas has been known for hundreds of years.

Possibly Alexander used it to boil his stew when he went visiting around the world and conquered everything in sight.

This natural gas is found in the petroleum regions

of Europe, Asia and in various states of the United States, and was first discovered in this country about 1821 at Fredonia, N. Y. It has been used as a fuel since 1840 and is forced at a high pressure through mains for long distances to various large cities like Buffalo, Chicago, Pittsburg and Detroit.

Coal gas is much better for the purposes of furnishing light, but the natural gas burned in Welsbach incandescent mantle burners will furnish good illumination and is found to have about one-third more heating value than coal gas.

The high pressure of natural gas renders the danger much greater from leaky pipes and great care should be used in installing such pipe work. The danger of explosions is also greater, as only ten times its volume or air is required to form an explosive mixture.

The piping should be tested to at least ten pounds pressure and no pipes should be run between floors or walls when it can possibly be avoided. **Ten pounds pressure means twenty inches of mercury showing in the glass gage of the testing apparatus.**

The gas fitter must be possessed of an extra amount of patience for he will have to listen to all kinds of kicks and stories.

It is about as easy to get anything from a brass monument of Shylock as to get any accommodation from a gas company.

It seems to be the general custom for all gas companies to treat their customers with an indifference and insolence which would not be tolerated from many other branches of business. How many persons can read the gas meter in their cellar? Yet this practice does not require a college education.

A secrecy has been maintained, or possibly an indifference, regarding this simple matter which ought to be done away with, and each consumer should be able to read his own meter and **know how much gas he has consumed.**

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# Kansas Master Plumbers Meet at Kansas City, Kansas

**Kansas City, Kansas,** March 8, 1909—[Special.]—More than sixty husky, aggressive and smiling delegates of the Sunflower State came together here this morning at the spacious rooms of the Odd Fellows' Hall for the purpose of attending the convention of the Kansas State Association which will continue for two days.

At eleven o'clock **President George W. Sutherin,** of Topeka, **called the convention to order** and, with a bland smile, announced that it gave him the greatest pleasure to call to order the assembled body at the eighteenth annual convention of the Kansas State Association of Master Plumbers.

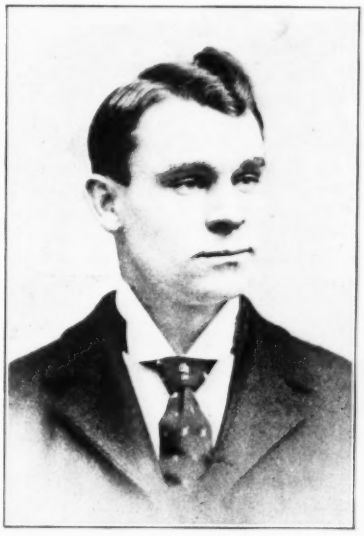
The President at once appointed Mr. Gilhaus sergeant-at-arms and Mr. Engler assistant sergeant-at-arms.

**The Committee on Resolutions** appointed by President Sutherin was composed of Mr. Bowers, of Emporia; Mr. Williams, of Parsons; and Mr. Stewart, of Junction City.

**The Committee on Constitution** consisted of Mr. Elder, of Ottawa; Mr. Knott, of Wichita; Mr. Gilhaus, of Kansas City; Mr. States, of Lopella, and Mr. Hertner, of Girard.

**The** local entertainment committee comprised the following named gentlemen: J. W. Miller, E. D. Draper and B. T. Engler.

**The Reception Committee** was composed of the entire local association, E. D. Draper acting as chairman.



**George W. Sutherin, of Topeka, Kans.**
Re-elected president of the Kansas State Master Plumbers' Association at its convention held this week in Kansas City, Kansas.

After roll call and the reading of the minutes of the last meeting the convention adjourned until 1:30 p. m.

### Monday Afternoon Session.

Promptly at 1:30 President Sutherin called the assemblage to order.

**George W. Wilson,** one of the oldest members present, was called upon for a speech and responded by stating his interest in the association would never grow less, even though he was quitting the business forever.

It was moved and seconded that an **amendment to the constitution** be made enabling Mr. Wilson to become an honorary member and a committee was appointed for the purpose.

**Secretary E. D. Draper** in the course of the reading of his report stated that the organization now contained the largest membership in the course of its history, and had a balance of some $1,900 in its treasury. He thanked the members for their promptness in responding to his inquiries and notices and the courtesy with which he had been treated.

**The convention** then arose and **went into executive session** during which **E. D. Hornbrook,** of Kansas City, Mo., **in behalf of the National Association, addressed the convention** upon matters pertaining to its welfare.

At 4:30 p. m. the convention adjourned until nine o'clock Tuesday morning.

### Delegates in Attendance.

The following is a list of delegates present:

**Atchison.**—Holbrook & Martin.

**Bonner Springs.**—A. B. C. Dague.

**Chanute.**—J. G. Ebert.

**Clay Center.**—August Obenland; A. A. Nixon.

**Coffeyville.**—McCullough Bros.

**Dodge City.**—F. O. Misner.

**Emporia.**—F. H. Bowers; C. W. Burnap.

**Fort Scott.**—H. Ingham; J. J. Marshall; N. A. L. Planck.

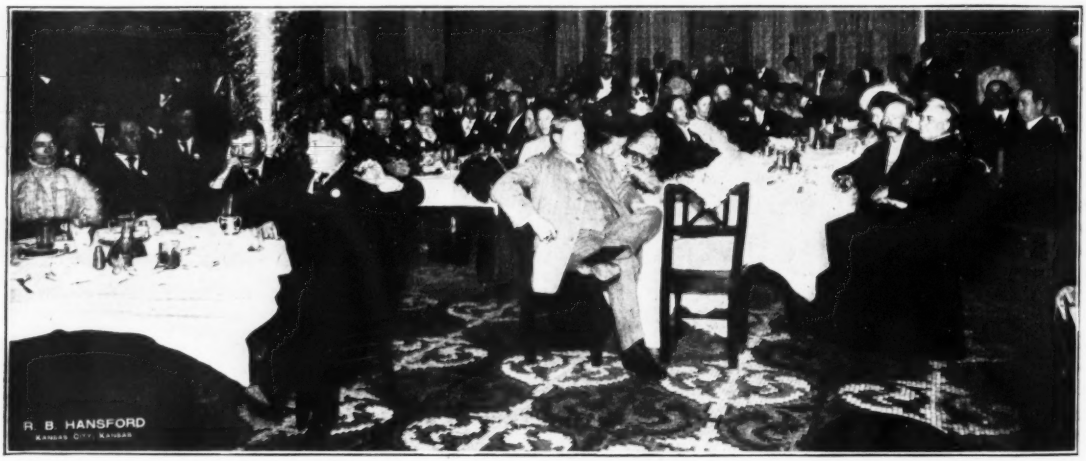
**Fredonia.**—Geo. W. Wilson.

**Girard.**—H. E. Hertner; W. S. Hitch.

**Hiawatha.**—H. A. Fairchild.

**Holton.**—T. J. Bennett.

**Independence.**—M. F. Whitman.




The Master Plumbers' Association of Kansas at its annual banquet held in the spacious banqueting hall of Hotel Grund, Kansas City, Kansas, on Monday evening, March 8, 1909.

**Iolia.**—Fred Reinisch; W. H. Root.

**Junction City.**—James Stewart; F. F. Zeigler.

**Kansas City.**—G. E. Gilhaus; C. E. Harris; A. T. Anderson; Carlson & Draper; E. D. Draper; B. F. Engler; Frei & Erickson; A. Garner; G. E. Gilhaus; C. E. Harris; Kinley & Peterson; J. W. Miller; G. F. Radcliff; F. Townsend.

**Lawrence.**—Graeber Bros.; Olson Bros.; Kennedy Bros.

**Lindsborg.**—J. A. Holmberg.

**Lyndon.**—W. R. Simsh.

**Manhattan.**—M. L. Hull.

**Marysville.**—Wm. Kramer.

**Olathe.**—Keyser & Christie; S. E. Wilkinson.

**Paola.**—J. A. Liggett.

**Parsons.**—McCaffery & Williams.

**Pittsburg.**—J. H. Beasley; M. M. Hartman; Crescent Hardware Co.; Hartzell & Shout.

**Seneca.**—Fuller & Son.

**Topeka.**—Gustafson & Preble; Wood Heating & Pl. Co.; Harry States; Geo. W. Sutherin.

**Wichita.**—A. L. Knott; E. A. Preston; E. A. Baker; J. W. Bays; Ben Devore; Earl Hahn; Frank Hoff; McLaughlin Bros.; Simmons Pl. Co.; Riley Bros.; Bert Hess. W. H. Warner.

**Winfield.**—H. A. McGregor.

### Tuesday Morning.

The convention was called to order at ten o'clock by President Sutherin.

**Lee B. Mettler,** of Pittsburg, Pa., read a highly interesting essay on Natural Gas, in the course of which he stated that plumbers in Kansas had given this subject too little attention, thereby cheating themselves out of much profitable business. He stated the surprising fact that two natural gas companies alone in Kansas serve a population of some 850,000 and that considerable more of the gas in Kansas is used for industrial than for domestic purposes.

Large quantities of gas are consumed in the manufacture of brick and cement. The estimated amount of such gas was considerably more than half a million dollars in 1907, ranging in price from one to three cents per thousand cubic feet, at the well.

He also stated that he had been told by experienced gas men that the gas from one well will not mix with the gas of another, i. e., the heat units will not intermingle so as to equalize the heat units of the product.

Another statement made in this highly instructive essay was that one reason for low gas pressure in this country was the presence of a high northwestern wind which would reduce the pressure (if the wind continues for a period of 24 hours) at least 25%, regardless of the temperature.

At the conclusion of Mr. Mettler's essay, in open sessions, remarks were made by **Thos. P. Watts, of Kansas City, Mo., and Chas. H. Denison, of "Domestic Engineering," Chicago,** upon gas, its utility and manner of producing a profitable business for the plumbing trade.

**A. P. Elder** then took the floor and favored the convention with an able essay on **The Benefits of the Right Methods of Advertising as Used in Connection**

with **the Plumbing and Heating Business.** He stated that he had been positively convinced in the past year that good advertising does bring results and that by modern advertising methods "we increased our business materially and by the actual records of the city did 75% of the plumbing business with five competitors in a small city and this fact is certainly a tribute to the power of the press backed by earnest and intelligent effort."

Several other delegates spoke, after which the convention went into executive session lasting until noon.

**Tuesday Afternoon.**

**President Sutherin rapped for order about 1:30,** the convention going almost without delay into executive session.

**Resolutions of condolence** were passed and ordered spread upon the minutes of the meeting in the matter of the deaths of two members, Christian States, of Topeka, and J. F. Conlin, who passed beyond during the past year.

**Geo. W. Wilson,** of Fredonia, **was elected an honorary member of the association.**

**Officers Elected.**

The following officers were thereafter elected for the ensuing year:

**President, George W. Sutherin,** of Topeka.

**Treasurer, F. H. Bowers,** of Emporia.

**Vice-President, C. A. Baker,** of Wichita.

**Secretary, E. D. Draper,** of Kansas City, Kan.

**Delegates to National Convention:** Chas. Baker, of Wichita; W. E. Fuller, of Seneca; E. D. Draper, of Kansas City, Kansas.

**A vote of thanks** was tendered the Kansas City, Kansas, local for the hospitable and generous manner in which they entertained the guests, whereupon the convention adjourned at 3:30 p. m.

**The convention for 1910 will meet at Kansas City, Kansas,** the second Monday and Tuesday in March.

**Entertainments.**

Upon Monday evening in the spacious and beautiful banquet hall of the Hotel Grund, Kansas City, Kansas, **a banquet** was held in honor of the Kansas Master Plumbers' Association. The many and various courses were a source of gratification to all. About 100 covers were laid and many ladies were present to grace the festive occasion. That veteran of the ladle, **Geo. W. Wilson,** of Fredonia, **acted as toastmaster** and speeches of wit and brevity were given. A feature of the evening were several vocal solos of unusual merit given by J. W. Miller, vice-president of the Kansas City (Kan.) Master Plumbers' Association. After a flash light was taken the happy party disbanded, feeling that this banquet had been the most successful in the history of the association.

**NOTES.**

**The plumbers of Kansas City, Kansas,** are getting remarkably active in politics and are going after the candidates on the various tickets and getting them to pledge their efforts in favor of a plumbing ordinance and an inspector, figuring that this is a move beneficial to all concerned.

**Lee B. Mettler,** District Sales Manager for the Pittsburg Water Heater Company, was much in evidence. Many favorable comments were heard regarding his most instructive essay upon "Natural Gas and Its Utility."

**N. W. Brown,** that efficient and lynx-eyed Inspector of Plumbing, from Wichita, dropped in for a few hours at the convention.

**Murray F. Kirkwood,** the Missouri representative of the **H. Mueller Manufacturing Co., of Decatur, Ill.,** passed around some very neat and attractive pocket books as souvenirs.

**Adam Cole,** representing the Vaile & Kimes Water Motor Co., of Dayton, O., was present and demonstrated the efficiency of his firm's goods.

**John D. Blake,** of Rock Island, Ill., was on deck with his patented clean out.

**Thos. P. Watts,** of Kansas City, Mo., dropped over on Tuesday morning for a chat with the members and while present gave several instructive talks on "How to Conduct a Plumbing Business."

**J. A. Liggett,** of Paola, secretary of the Central Radiator and Foundry Company, was present, talking about the merits of his company's new loop for steam and hot water radiators.

**W. C. Irons,** the loquacious representative of the **Peerless Selling Co.,** Evansville, Ind., was much in evidence and entertained all visitors by serving refreshments in the characteristic and hospitable manner of his firm, while describing the merits of their line of closets, closet seats and various mechanisms for closets.

**Chas. H. Denison.**

# Indiana Master Plumbers Meet at Kokomo, Indiana

**Kokomo, Ind., March 9, 1909.**—[Special]. **The Indiana State Association of Master Plumbers opened its thirteenth annual convention** this morning in the Elks' Club rooms in this city. The delegates began to arrive early and the enthusiasm which always characterizes these annual gatherings was everywhere in evidence.

**Opening Session.**

The opening session of the convention was called to order at 10:45 o'clock by **President A. F. Weinhardt, who, after a brief but hearty address of welcome, at once proceeded with the business on hand,** appointing committees on credentials, resolutions and grievances as well as an auditing committee.

**Organizing Secretary Chas. A. Eddy** thereafter **read his report,** after which **Treasurer A. E. Werkhoff submitted his annual report.** These reports showed that the state association is in a good condition both as regards membership and finances.

At this point adjournment was taken until 2 p. m.

**Tuesday Afternoon Session.**

The afternoon session was called to order at 2:15 o'clock by **President Weinhardt,** after which he at once introduced **Mayor A. J. Arnett,** who **delivered an eloquent address of welcome,** inviting them to partake in all pleasures and profit that the city of Kokomo affords.

For these courtesies, **President Weinhardt extended in the name of the association sincere thanks,** the ap-

preciation of the delegates being further manifested by applause.

**The auditing committee thereupon submitted its report,** which was followed by **the report of the committee on credentials,** which showed that the following delegates were in attendance and entitled to seats on the floor of the convention:

**Delegates in Attendance.**

**Anderson:** W. H. Powell, J. H. Emmett and F. C. Cookman.

**Batesville:** H. F. E. Schrader.

**Bedford:** J. J. Quinn.

**Muncie:** J. A. Gallivan, J. P. Dragoo, E. L. Clevenger and F. W. Stauf.

**New Albany:** W. H. Beeler and A. Lindemann.

**Richmond:** H. H. Meerhoff, H. C. Hieger and Chas. Johanning.

**Sheridan:** W. R. McArty.

**South Bend:** James Aslin, J. M. Singler and Rex Miller.

**Terre Haute:** A. J. Weinhardt, O. A. Toelle and J. M. Freitag.

**Wabash:** F. H. Henley.

**Whiting:** G. J. Eustace, Jr.

The bright men of the Indiana trade gathered to attend the annual meeting of the Indiana State Association of Master Plumbers at Kokomo, Ind.

**Bloomington:** W. A. Brissenden.

**Edinburg:** Elmer Freese.

**Evansville:** E. B. De Champ and E. H. Hartig.

**Fort Wayne:** J. B. O'Rourke.

**Gary:** H. H. Highlands, C. H. Maloney, J. B. Burke and C. A. Huettuer.

**Goshen:** Chas. E. Kutz.

**Greenburg:** C. P. Corbett.

**Indianapolis:** Geo. F. Kirkhoff, W. W. Wilcox, J. G. Hayes, E. A. Strong and C. A. Eddy.

**Kokomo:** T. E. Sullivan, A. P. Rose, A. C. Bennet and T. E. Turley.

**La Fayette:** A. E. Werkhoff.

**La Porte:** Edw. Kanney.

**Logansport:** Jno. W. Holland and Wm. Whitehead.

**Martinsville:** Chas. Johnson and P. F. W. Newman.

After the reading of the report of the Credential Committe had been disposed of, **a letter from Chas. T. Byrne,** of Chicago, **was read recommending** that the convention take up **the matter of liability insurance.**

After some discussion on this topic, **H. H. Highlands,** of Gary, **made the following motion which was adopted** without alteration or amendment:

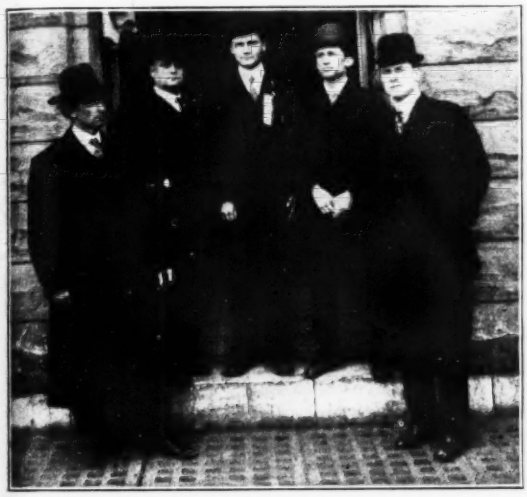
**"Resolved,** That the incoming president be authorized to appoint a committee to procure information concerning what the best liability insurance and security bond is, and that this committee shall notify the members of the association of the name of the company and its rate of insurance."

**President Weinhardt thereafter read his annual report,** following which, **the convention went into execu-**

tive session, remaining behind closed doors until 5:30 when adjournment was taken until the next day.

### Wednesday Morning.

On Wednesday morning the delegates were the guests of the **Great Western Pottery Company**, of Kokomo, Ind. At nine o'clock they were taken on board a special interurban car on a sight-seeing tour around the city and out to the pottery where they were initiated into the mysteries of the manufacture of vitreous lavatories and other sanitary products, as well as entertained with refreshments in one of the kilns. On the return trip they were taken to the plant of the **Kokomo Brass Works**, where they also



Commercial ambassadors in attendance upon the Indiana State Master Plumbers' Association at Kokomo, this week. From left to right—John W. Holland, of the Logansport Radiator & Equipment Co., Logansport, Ind.; D. E. Rowley, of the H. Mueller Mfg. Co., Decatur, Ill.; James O'Donnell, Logansport Radiator & Equipment Co., Logansport, Ind.; Frank C. Cookman (unfortunately not a salesman); C. G. Perkins, Jr., of Peerless Selling Co., Evansville, Ind.

saw plumbing goods in the process of manufacture and were again entertained in a hospitable manner.

### Wednesday Afternoon.

The convention assembled at 2 o'clock and went forthwith into executive session in which all the officers of the association were re-elected as follows:

### Officers Elected.

**President, A. F. Weinhardt**, of Terre Haute.

**National State Vice-President, A. F. Weinhardt**, of Terre Haute.

**Secretary, Chas. A. Eddy**, of Indianapolis.

The following were elected as **delegates to the national convention: George F. Kirkhoff**, of Indianapolis; **A. E. Werkhoff**, of La Fayette. **Alternates: C. H. Maloney** and **H. H. Highlands**, both of Gary.

It was decided to hold **the next** convention at **Gary, Ind.**

The convention hereupon adjourned sine die.

### Convention Notes.

The convention was throughout a pronounced success, not only a very profitable one, but a very pleasant one, **the banquet** given Wednesday evening at the Francis Hotel being one of the finest ever tendered a master plumbers' convention and there is not a delegate but who has a most agreeable impression of Kokomo and Kokomo hospitality.

**The H. Mueller Mfg. Co.**, of Decatur, Ill., was represented by D. E. Rowley, who exhibited some of its products and presented the delegates with handsome note cases.

**The Logansport Radiator & Equipment Company**, of Logansport, Ind., had some of their radiators on exhibit in charge of its secretary, James O'Donnell, and John M. Holland.

**C. G. Perkins, Jr., of the Peerless Selling Company**, of Evansville, Ind., held open house in his apartments, serving refreshments to his guests, and incidentally displaying some of the Peerless products.

## New York Master Plumbers Meet at Schenectady

**Schenectady, N. Y.**, March 9-10, 1909—(Special).—The twenty-first annual convention of the New York State Association of Master Plumbers, from early indications, bids fair to eclipse all its predecessors in every particular. Enthusiasm is everywhere manifest on the faces and in the actions of the delegates, and even the good hearted natives of this quaint and ancient city are lending every possible assistance toward the comfort of the plumbers.

**Sunday and Monday** proved a continual round of enjoyment for the early arrivals. A good mantle of snow was on the ground Sunday and some of the delegates enjoyed an afternoon of sleighing.

**The executive board** held two long sessions on Monday and worked over reports and arranged unfinished business for presentation at the regular sessions.

**Headquarters were established at the Vendome Hotel**, but the plumbers have Vendome, Edison and everything else in the shape of a hotel monopolized.

### Tuesday Morning.

The initial session of the convention was called to order in Red Men's Hall by President Frank L. Beyer, but was thereupon interrupted by **Charles Geiger**, of Buffalo, who had something to say and immediately proceeded to do so. He hastily concluded by producing **a handsome ebony gavel which he presented to President Beyer** on behalf of his fellow associates of Buffalo as showing their good will. Mr. Beyer told the delegates he would try to show his appreciation of the gift in his own local.

**President Beyer in addressing the convention** paid tribute to the Schenectady Association and **called upon** its president, **J. R. Sheehan, who in turn introduced Dr. Chas. C. Duryea** of the local board of health.

Dr. Duryea extended a hearty welcome to the delegates on behalf of the city and spoke of the many things of interest to be seen in Schenectady. He asked the president to give the delegates an opportunity to inspect the sanitary equipment of the Robinson street school in particular. He received hearty

applause for his words and President Beyer in thanking him pinned a badge on his coat and pronounced him the first delegate of the convention.

**Ex-President T. A. Hill** also addressed the convention. He told the delegates of the gratification National President Halsey feels in the advancement in the New York State Association, and also made official announcement that the next national convention would be held in Detroit on June 22, 23 and 24.

**Louis Friday,** of Schenectady, was then appointed sergeant-at-arms to guard the portals of the convention.

**The president then appointed the following committees:**

**Credentials: John Renehan,** New York; **T. F. Nolan,** Albany; **J. P. Welsh,** Buffalo.

**Resolutions: J. R. Sheehan,** Schenectady; **C. J. Geiger,** Buffalo; **L. Yanichi,** Rochester; **J. D. McEntee,** New York; **C. H. Kienzle,** Syracuse.

**Auditing: E. D. Clark,** Richmond; **William Madill,** Watertown; **W. J. Murray,** Jamestown.

**The report of standing committee** was next in order. That of the Legislative committee was laid over to a later session.

**The sanitary committee** presented the following report by its chairman, T. C. O'Brien:

### Sanitary Committee's Report.

"New York State Association of Master Plumbers.

"Gentlemen: Your sanitary committee begs leave to submit the following report and recommendations and in connection therewith wish to state that particularly at this time when so much time, skill, and money are being used throughout the country to stamp out diseases of all kinds, **it should behoove all plumbers,** especially those in our state, **to lend their best efforts to see that all plumbing is done in the most modern, scientific and sanitary manner.**

"We recommend the following for your approval and consideration.

"I. **The venting of traps from the crown should be abolished,** and the circut or continuous venting be used.

"II. **All traps should be vented** regardless of style or manufacture.

"III. When possible **all cities or towns should provide comfort stations at suitable places.** These stations should in all cases be located above ground and provision made for light and air.

"IV. **All work should be inspected** and tested.

"V. **All public toilet rooms,** such as those in cafes, railroad stations, etc., **should be inspected from time to time** and kept in thoroughly sanitary condition.

"VI. Where tanks are used for drinking-water, such should be of the compressed air type and not open and uncovered.

"VII. The ball cocks in all closet tanks should be so arranged so that the water can not be shut off until at least five gallons are in the tank and only syphon tanks should be used.

"VIII. The use of improvised strainers for urinals should not be allowed.

"IX. The use of such strainers is becoming the custom in cafes and such places. No strainers should be permitted unless it is thoroughly cleansed with each flush of the tank.

"X. Only closets of the syphon or wash-down type should be allowed.

"XI. All floor slabs at closets and all partitions, etc., at urinals should be of impervious stone, marble or slate.

"XII. **No plumbing fixture,** when possible, **should be set in a room or apartment which is not directly connected to outside air or light.**

"As plumbing is the most important work in a building, from a sanitary view, the matter of cost should not militate against the work being done properly, and we submit that economy is best practiced when plumbing work is done in a thoroughly first-class manner.

"Respectfully submitted,

"T. J. O'Brein."

**The report was considered** too valuable to be passed over hurriedly and was laid over to be discussed at a later session.

### Report of Apprenticeship Committee.

**H. J. Bareham,** chairman, read the following **report of the apprenticeship committee:**

"There seems to be **little change in the conditions** as they have prevailed for the past few years in the matter **of apprentices.** Both apprentices and masters seem to be satisfied with their lot as it exists in the different localities, as no complaints or inquiries have reached this Committee since its appointment.

"We find that in larger cities the matter of apprentices is largely controlled by trade agreements between the masters and the journeymen's unions. Restrictions are placed on the number of years an apprentice shall serve before he becomes a journeyman, also as to the number of apprentices in any one shop, all the way from one apprentice for each journeyman to one apprentice for each shop only; while in the towns the master employs as many as he wishes.

"We find the city of Rochester working under a rather unique arrangement in the matter of apprentices. All apprentices are working under an approved form of application for position with the master; the apprentice agreeing to serve four years at the trade with this particular firm, the minimum and maximum wages are mentioned, also the number of hours to be worked by each. The master agrees in turn to teach the apprentice in all the different branches of the trade, etc. Should the master desire to release him to another shop, he is given back his application with recommendation properly filled in on the back of same as to his efficiency and length of service, which application he then files with the master who next employs him. While it is a new scheme and has only been in use about six months, it is found to work satisfactorily to all concerned, as it has a tendency to impress upon the apprentice his responsibilities, and at the same time keeps out the undesirable from becoming advanced in the trade by jumping from one shop to another and in time becoming a detriment to the trade.

### Recommendations.

"**We endorse the recommendations** contained in the report of the previous apprenticeship committee in the matter of using extreme caution in selecting appren-

tices. Here lies the foundation of the future plumbing industry. If apprentices are not found to be in possession of sufficient intelligence to make competent workmen—stop them before it is too late. If they are competent and show proper inclinations for advancement, help them all you can. We find many instances where apprentices are availing themselves of the various opportunities for education in the trade afforded by Correspondence, Trade, and Technical schools. This should be encouraged as it is sure to improve mechanics and eventually bring about better conditions.

"Respectfully submitted,

**"Harry J. Bareham, A. J. Bannigan."**

After **extending thanks to the transportation committee** President Beyer adjourned the meeting until 4:30 p. m.

**Tuesday Afternoon.**

After a pleasant trip through the plant of the General Electric Company the delegates returned to the hall and immediately took up the business of the convention.

**The report of the insurance committee** was before the meeting and an interesting paper on this topic was read by the chairman which brought forth considerable discussion by the delegates. Messrs. Clark, Fladd and Bannon taking the leading part.

Upon motion **the report was accepted** and the incoming administration instructed to appoint a committee to make the best terms possible.

The following is **the report of the credential committee, showing a complete list of the delegates together with their alternates,** which was made at this point:

**Credential Committee's Report.**

**Schenectady:** Delegates: John R. Sheehan, pres.; F. V. DeForest, Jr., C. F. Shanks. Alternates: Wm. C. Vrooman, D. H. Williams.

**Utica:** Delegates: Wm. C. Hughes, A. J. Bannigan, A. W. Danquar, Geo. L. Bucker, pres. Alternates: L. C. Scharfe, W. A. Tibbets, Jos. Burke.

**Troy:** Delegates: Martin Mulligan, pres.; Wm. F. Quinn, John S. Beck. Alternates: John J. Cowen, John A. Reid, Geo. F. Healey, Nelson L. Bills.

**New York City—Manhattan Branch:** J. P. Knight, B. F. Donohoe, T. S. Cochrane, Jr., M. Jarcho, T. A. Hill, P. Brady, I. J. Brown, John Smith, A. E. Jackson, T. J. Tuomey, M. Schnair, E. Hurley, H. J. Schiffer, A. E. MacLean, W. Young No. 1, P. J. Commerford, A. Hanson, W. J. Buckley, C. A. Walsh, J. D. McEntee, E. J. Brady, J. J. Falihee, J. J. Dowling, T. J. Cummins, Jas. Smith, D. Deigan, F. Reynolds, C. Muller, C. Murphy, F. B. Lazette, G. H. Creasey, J. Renehan, F. J. McCaul, J. F. Fee, M. E. Keife, J. L. Murphy, M. J. O'Brein, P. J. Dickinson, J. T. McMahon, J. J. Delaney, J. D. Duffy, J. G. Hanson, Fred Schuman, Wm. Smale.

**New York City—Richmond Branch:** E. D. Clark, pres.; G. W. Folger, R. D. Silles, W. H. Sullivan, R. Jurgenson.

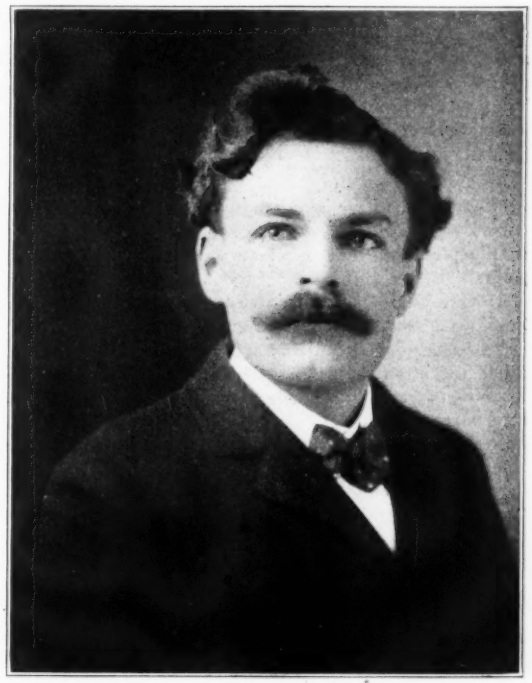
**New York City—Queen's Branch:** F. B. Robertson, pres.; G. Gross, M. Bennet, J. F. Rogers, Geo. M. O'Connor, P. P. Scott, J. Anderson, P. Hartman, F. Know, R. Jephson, J. Moehn.

**New York City—Brooklyn Branch:** J. L. Meeks, M. F. Gleason, T. E. O'Brein, L. A. Deise, J. J. Dixon, J. T. Keenan, J. Jarcho, E. MacDonald, W. Eirrman, Harry Voletsky, T. F. McEnaney, W. M. Brown, J. W. Sands, Martin Hayden, Ed. Belford.

**New York City—Bronx Branch:** W. J. Flynn, S. H. Welch, F. Weber, P. Schweikert, D. Durie, Jr., W. Wilcox, E. L. Eich, F. Ten Brook, D. L. Delaney. Alternates: J. Theiss, J. V. McEvily, J. Fox, J. Muller, G. Knaus, H. Salzman, J. Hogan, O. Johnson.

**Auburn:** Delegates: S. H. Barrett, H. A. Kerseake. Alternates: O. J. Hickey, W. Timmons.

**Buffalo:** John T. Welch, Thos. J. Kavany, John B. Green, Harry J. Miller, B. J. Sander, Jerome W. Cline, C. B. Huck, J. J. Kavany and Chas. Geiger.



**Thos. S. Cochrane, Jr., of New York City.**
Secretary-elect of the New York State Association of Master Plumbers, and formerly Secretary of the National Association of Master Plumbers.

**Albany:** Thos. F. Nolan, Albion J. Eckert, T. A. O'Malley, Frank F. Schimpf and John L. Fitzgerald. Alternates: John H. Moran, James H. Doody, James J. Gorman and J. C. McNally.

**Watertown:** Geo. H. Mowe, William Madill and James Lewis. Alternates: Fred B. Wilson and Geo. Parkhurst.

**Kingston:** C. P. Ashley, S. Brown and L. H. Bannon.

**Gloversville:** Adolph Treher, Jr., and M. J. Kavanaugh, alternate.

**Newburg:** Thomas King.

**Oswego:** M. B. Crawford and T. M. Hennessey. Alternates: T. Keefe and M. M. Kehoe.

**Newark, N. Y.:** B. Fanning.

**Poughkeepsie:** P. C. Doherty.

**Rochester:** Louis J. Yauchzi, John J. Coughlin, P. J. Donovan, F. E. Fladd, Harry J. Bareham and Henry W. O'Neil. Alternates: Frank J. Rosney, Chas. H. Meitzler, Joseph Gleason, W. J. Brown and John C. Louth.

**New Rochelle:** Joseph Carr and Louis Kettner, and Robert Henderson, alternate.

**Port Jervis:** John Toth and John D. Swinton, Jr.

**Jamestown:** Geo. A. Chatfield and Martin J. Murray. Alternates: Allen Marley and William Jenkinson.

**Oneonta:** C. W. Herrick and T. W. Stevens. Alternates: J. J. Turner and W. L. Brown.

**Syracuse:** Chas. A. H. Kienzle, C. E. Ames, W. F. Gooley, T. X. Donovan, W. B. Goldie, C. E. McCarthy and John Lavelle. Alternates: Fred Soper, J. L. Curran, Geo. Boysen, J. F. Guider, T. E. Clay and I. G. Ward.

**Binghamton:** George Cropper, F. P. Kelly, and W. Liddell. Alternates: V. W. Kadley and R. J. Malane.

**Resolutions** were adopted to extend a rising vote of thanks to the General Electric Company and the American Locomotive Works for the courtesy extended the plumbers during interesting trips through their plants.

At this point **it was decided to refer the Sanitary Committee's report to the committee on resolutions.**

Before adjournment **B. F. Donohoe,** of New York, **called the attention of the delegates to a case now before the Court of Appeals** in this state in which an incorporated plumbing firm attempted to collect a bill for work done on a contract from the defendant. The defendant claimed the corporation to be illegal inasmuch as only one member was a licensed plumber. Mr. Donohoe said that several other similar cases were hanging fire in the lower courts awaiting the decision of the court of appeals.

The meeting then **adjourned to reconvene in executive session Wednesday morning.**

### Wednesday.

The convention re-convened at 10:30 Wednesday morning and immediately went ino executive session. A recess was taken, after which the meeting was resumed behind closed doors until 6:30 p. m.

### Election of Officers.

When the doors were again opened the meeting took up the election of officers. This resulted in the following choice:

**President, I. J. Brown,** New York.

**Vice-President, Fred E. Fladd,** Rochester.

**Treasurer, Charles A. Campbell,** Watertown.

**Secretary, T. S. Cochrane, Jr.,** New York.

**Delegates-at-large to the National Convention:** J. J. Kavany, Buffalo; John E. Dugan, Albany; B. F. Donohoe, New York; John R. Sheehan, Schenectady, and Thomas E. O'Brien, Brooklyn.

**National State Vice-President:** B. Joseph O'Donnell, Syracuse.

The place for holding the next meeting has been left in the hands of the incoming executive board.

**Hearty thanks were extended to the Schenectady association** for the able and liberal manner in which they entertained the visiting delegates while in the city, **also to the retiring officers, and the trade press for their able co-operation.**

With the completion of this business the convention took final adjournment at 8:30.

### Entertainment.

**The Schenectady Association** left no stone unturned in providing for the comfort and entertainment of the delegates and everyone was more than pleased with the entertainment arranged by the following committee: Frank V. DeForest, chairman; Thomas F. MacGregor, John Allen, Floyd S. Hedden, William Cahill, C. F. Shank, Fred Wemple, Fred Brown, T. H. Williams, W. D. Rogers and Louis Friday.

**Monday afternoon** the delegates were taken through the plant of the American Locomotive Company where an excellent opportunity to see the massive machinery in operation was had.

**Monday evening** every delegate in town was taken to **the Empire Theatre** where half the house was reserved for their accommodation and decorated in their honor. After the performance a special car took them to the Hotel De Belview where the now popular "badger fight" and several other exhibitions of sportsmanship were witnessed.

**On Tuesday afternoon** the business session was delayed until 4 o'clock in order to give the delegates an opportunity to inspect the extensive works of the General Electric Company.

Not satisfied with all this **a big smoker was given on Wednesday evening** in Red Men's Hall and three or four hours were spent in solid enjoyment.

This brought the convention to a final close and the members returned to their respective homes with a unanimous stamp of approval on the efforts of the Schenectady Association.

### Convention Notes.

**The new association,** just "forty-five minutes from Broadway," was ably represented by its two delegates, **Joseph F. Carr** and **Robert Henderson.** This was New Rochelle's first experience in convention circles and these genial gentlemen were very gently initiated. Messrs. Carr and Henderson exhibited a new flush valve at the convention, a device patented by Joseph Ruhl, vice-president of the New Rochelle Association.

**To the sanctum of the Jay-Zee Sales Company,** of New York, in Room 64 at the Edison, streamed a constant flow of delegates eager to see the company's new portable vice bench. D. W. Zabinsko, president of the company, held open house at all hours.

**From Evansville, Ind.,** came four venerable gentlemen: H. F. Weaver, general manager and secretary; W. H. Fifield, R. P. Smith, and Harry Snow of the **Peerless Selling Company.** They immediately established headquarters in Room 20 at the Vendome with an interesting exhibit of their company's closet combinations.

**Arthur C. Pilcher** of the **H. Mueller Manufacturing Co.,** arrived on Tuesday and was eagerly sought by everyone. He distributed handsome card and bill cases among the delegates.

**B. Fanning,** of Newark, N. Y. the personification of joviality under all conditions, very liberally distributed

a neat pocket mirror and incidentally invited the delegates to inspect his display stand or rack for sanitary fixtures.

**T. S. Cochrane, Jr.,** will very likely exhibit a twenty-five ton locomotive when he gets back to New York. He has everything ready to be assembled, although he says there may be a few bolts missing.

**L. A. Welch,** of E. W. Hollister & Co., Schenectady, exhibited a new nipple chuck at the convention hall. The device is known as the "W. B."

**Neat souvenir badges** were distributed by the Schenectady delegates. F. V. DeForest was appointed a committee of one to distribute them and immediately became a favorite among the conventionites.

**Tuesday night** was a "big night" at the opera house, **Young Corbett** and **Cy Smith** fought to a draw there before the American Athletic Club. This attracted many of the delegates who occupied the best half of the house.

**The two twins,** O. W. Middaugh and W. L. Heady were very much in evidence at all hours. Heady made quite a hit at the Empire. Sam Devere has them signed up for some good comedy. "Little Eva and Cupid"—"listens well." **C. G. Fundinger.**

## Association News

### Pittsburg Master Plumbers Plan Big "Splash."

**Pittsburg, Pa.**—There is going to be a splash in this city that will, if reports flying around this week are true, eclipse any that this city, well known for its severe floods, has ever had, but contrary to the usual custom of the spring floods in the Allegheny and Monongahela rivers, it is not likely that there will be any serious damage resulting. Time, however will tell, as will "Domestic Engineering" in the last issue of this month, when the full account of the "splash" will be published. All this means that the Master Plumbers' Association of Pittsburg and vicinity has arranged for a stag splash, which is an innovation in the social affairs of the organization, and on account of the great amount of interest that is being shown, it promises to be one of the most successful "stunts" that that well known body has ever "pulled off." The "splash" will be held at the new Pittsburg Natatorium on Thursday evening, March 18th, and will be for the members of the association and their friends, which will include prospective members, members of the various plumbing supply houses and a list of especially invited friends as guests of the association. Invitations to the event are being sent out this week, and all members of the association are urged to be present whether they swim or not.

The association has secured the pool for the entire evening from nine o'clock on, so that the bashful ones need not fear that their friends may follow them and see them sporting around in (or under) the water.

The program of sports for the evening is as follows:

Event No. 1.—A plunge for distance. A time limit of one minute has been placed on this event, which will be open to members of the association only.

Event No. 2.—Sixty yard race, two full lengths of the pool. This event also will be open only to members of the association.

Event No. 3.—An egg and spoon race, two full lengths of the pool. This event will be open to both members and guests.

Event No. 4.—An exhibition of high and fancy diving.

Event No. 5.—A plunge into the pool for a prize by everybody. This will also include the German Band if it has not been doing its duty.

Event No. 6.—The Fat Men's Race. Contestants in this event will be compelled to tip the scales at 200 pounds or more, and entrants must be members of the association.

Beautiful prizes, which will be announced later, will be offered in events numbers 1, 2, 3, 4 and 5. It was decided to offer no prizes for event No. 6, as the pleasant smiles that will be offered by all witnesses to the event will be considered sufficient honor for all entering. In this event, Messrs. McKnight, McFadden, Munden, Tate and Bloedel have already sent in their entries, and many more will follow this week.

The committee in charge of the arrangements of the evening is composed of T. F. Scanlon, P. J. Montague and J. A. Weldon. There will be no entry fee charged in any events arranged for the evening.

## Obituary

**John S. Palmer,** from 1891 to 1899 connected with "Domestic Engineering," died abroad Wednesday, March 10, aged about 50. Since 1898 Mr. Palmer has resided in England. During his eight years' connection with this company he made many friends who—while they have not heard or seen much of him in late years—will be sorrowfully affected by the news of his death. In the early history of "Domestic Engineering" Mr. Palmer labored earnestly and effectively in its business department, and by many of the firms who advertised in its columns a decade since he will be well remembered. In late years he has been engaged in conducting the Exhibit and Trading Company, in Liverpool, which, however, was wound up last year. Mr. Palmer was born in London, and came to this country when 16 years of age. In 1882 he became connected as advertising solicitor with "The Sanitary News," the first sanitary paper established in the west, remaining in that connection about four years; he then resided in an eastern city until 1891, when he became connected with "Domestic Engineering." In that year he married Miss Martha Wendnagel, a sister of Eugene and William Wendnagel, of Chicago, who survives him, living with her three sons and one daughter, in Dieppe, France. He is also survived by a daughter by a previous marriage.

**Edwin H. Roberts,** treasurer of the mill supply concern, Geo. I. Roberts & Bros., Inc., 471-473 Fourth avenue, New York City, passed on at Auburn, Me., on Saturday, February 27 according to announcement issued by his company.

**Ervin Saunders,** vice-president of D. Saunders' Sons, Inc., of Yonkers, N. Y., passed on at his brother's home in that city on Wednesday, February 17, according to an announcement issued by his company. Mr. Saunders was in his 61st year at the time of his death.

# IMPORTANT MOVEMENTS TO WHOLESALE TRADE

## The National Committee adopts a trade name to indicate goods of standard quality

## Leading Pipe and Fitting Jobbers Organize a National Association

### THE CONFEDERATED SUPPLY ASSOCIATIONS ADOPT A TRADE NAME.

**The National Committee of the Confederated Supply Association** (a New York State corporation) has for some time been considering measures which could be taken to improve the standard of plumbing goods and its Committee on Standardization last June met in Detroit and recommended **standards of weight for soil pipe, weight and thickness for lead bends and traps, and capacities and tests for range boilers.** Four other lines of merchandise used by plumbers are being considered and it is expected that recommendations as to standards of weights, sizes and capacities will be made.

It has been believed by those most interested in improving the quality of merchandise that if a special mark, sign or label could be adopted, which affixed to any piece of merchandise would indicate that it came up to the standards recommended by the National Confederate Supply Association, a decided improvement would be accomplished in reference to quality of goods, as the buyer would instantly be able to tell whether the goods offered for his purchase were up to standard.

Necessarily the adoption of an indication of standard, to be adapted to lines of merchandise of vastly different character was a difficult matter. It is therefore with great pleasure that we are able to announce that the **National Committee of the Confederated Supply Associations, which met in New York last week, has adopted a trade name.** The promulgation of this name is accompanied by the statement that:—

> **"For the purpose of improving the quality of plumbing supplies, and establishing uniform standards of size and quality,** with a view to the development of the trade and securing the safety and health of the public generally, the National Committee of the Confederated Supply Associations **adopts as a trade mark or trade name the word 'Naco.'"**

The association also makes this statement:—

> **"The principal object of this Association is to foster trade and commerce in plumbing and heating supplies, to reform abuses relative thereto, to advance the standard of material and workmanship employed in manufacturing and installing said plumbing and heating supplies,** and to prevent so far as possible the sale and use of unsanitary and unserviceable material, and the employment of unskilled and inefficient workmanship.
>
> "On this basis the National Committee invites the assistance and co-operation of all interested parties."

**"Domestic Engineering" has been extremely insistent upon the necessity for improving the quality of plumbing merchandise.** It expects to be even more insistent upon this necessity in the future. With due modesty it believes that its editorial policy has to some extent created the revulsion in the trade against the downward tendency in manufacture. It is therefore particularly happy to be able to announce this action of the National Committee of the Confederated Supply Associations.

### NATIONAL ASSOCIATION OF JOBBERS IN WROUGHT PIPE, VALVES AND FITTINGS ORGANIZED.

**Another national organization has been formed** within the trades reached by Domestic Engineering. The jobbers of wrought pipe, valves and fittings have felt the severe competition between themselves and the effect of direct sales from manufacturers to the consumers to such an extent that some of them who handle exclusively these products in leading eastern cities have recently begun to realize that some action for their protection was necessary. Naturally this action took the direction of organization. Several preliminary meetings were held and the result was that an invitation was sent to about two hundred dealers handling these commodities to hold a conference in Pittsburg. About one hundred of the two hundred invited responded indicating their approval of the step to be taken and assuring co-operation. There were in actual attendance about forty representatives from the principal eastern cities, including the leading pipe and fitting dealers of the country. Because of the fact that the Western, Pacific Coast and Southern states were far away from Pittsburg and that pipe, valves and fittings in those states are carried by wholesalers in plumbing and heating supplies and machinery and in some cases by hardware jobbers, the attendance from those states was small. The first suggestion made was that the pipe and fitting dealers should comprise a separate branch of the National and Southern Supply and Machinery Dealers' Associations. After discussing this point thoroughly it was thought best to organize an entirely separate national association and at the opening of the afternoon session a report of the Committee on Permanent Organization was read and adopted.

T. James Fernley, Secretary-Treasurer, of the National Hardware Association was present on invitation and gave a talk on the practical work associations can do.

It was decided that the association should be called **"The National Association of Jobbers in Wrought Pipe, Valves and Fittings."**

**The following officers were elected** to serve for one year: **President, A. E. Ford,** of Ford & Kendig, Philadelphia; **First Vice-President, C. H. Simmons,** of John Simmons & Co., New York; **Second Vice-President,**

**O. F. Felix,** of Pittsburg Supply Co., Pittsburg; **Treasurer, C. G. Cornell,** of Cornell & Underhill, New York; and the **Executive Committee is as follows: G. H. Merkel,** of Merkel Brothers, Cincinnati; **F. M. Sheldon,** of Braman, Dow & Co., Boston; **E. G. Cuyler,** of Cuyler & Mohler, Baltimore; **William Ivy,** of N. O. Nelson Co., St. Louis; **H. R. Boynton,** of H. R. Boynton & Co., Los Angeles, Cal.

In accepting the presidency Mr. Ford announced that he would do it with the understanding that he would serve only one term and that the secretary's office would for the first year be located in Philadelphia.

The Executive Committee is authorized to appoint the secretary and it is expected this will be done soon. The membership fee has been fixed at $25.00 and the annual dues at $75.00.

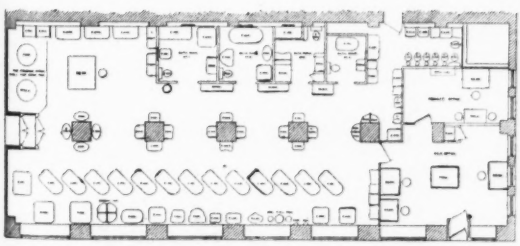
President Ford strongly urged those present to unite with the organization by signing the roll of membership. A number of those present did not feel at liberty to act for their associates in so important a subject without consulting them and because of this provisional signatures would be accepted, permanent membership subject to the approval of the house represented. About thirty firms represented signed the roll of membership. The annual meeting of the associations are to be held in March of each year.

Representatives of the National and Southern Supply and Machinery Dealers' Associations were present and extended assurance of the hearty co-operation in the work of the new organization.

## Other Wholesale News

**The National Association of Brass Manufacturers** will hold its regular quarterly meeting at the Jefferson Hotel in St. Louis, Mo., on Monday, Tuesday and Wednesday, March 15, 16 and 17.

**The Standard Sanitary Manufacturing Co.** of Pittsburg, Pa., on Tuesday, March 9, opened its new showrooms at 100-102 North Fourth street, corner of Chestnut street, St. Louis, Mo., and held a continuous reception from 10 a. m. to 10 p. m., the entire trade of



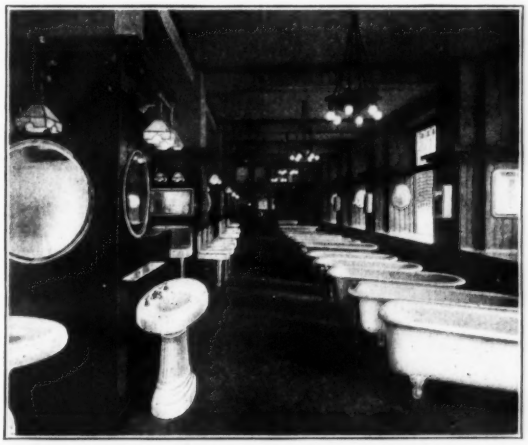
Floor plan of new showroom of Standard Sanitary Manufacturing Co., of Pittsburg, Pa., opened in St. Louis last Tuesday. An excellent arrangement of plumbing fixtures which may well be copied by plumbing establishments desiring adequately to show sanitary ware.

St. Louis, together with the architects and sanitary engineers having been invited to the exhibition of high grade plumbing fixtures. The floor plan of the display is so suggestive that we reproduce it herewith as forming a good suggestion for a display of plumbing materials in contracting plumbing establishments. Every visitor who presented the card of invitation received a complimentary copy of the souvenir edition of "History of Sanitation." The St. Louis branch office of the Standard Sanitary Manufacturing Co. has for many

View looking toward front of the new showroom of Standard Sanitary Manufacturing Co. of Pittsburg, opened in St. Louis last Tuesday.

years been in charge of Jas. A. Riordan, and on Tuesday he was assisted in welcoming the visitors by Francis J. Torrance, first vice president; E. F. Gregg and H. E. Clark of the sales department of Pittsburg; O. H. Marschuetz of the Louisville Works, and Mr. Farrell and Mr. Sendon of the St. Louis sales force.

**The Detroit-Milford Sanitary Manufacturing Company,** with plant at Milford, Mich., and executive and sales offices at 221 Stevens building, Detroit, has re-



View looking toward rear of the new showroom of the Standard Sanitary Manufacturing Co. of Pittsburg, opened in St. Louis last Saturday.

cently been organized and incorporated with a capital of $100,000 as successor to the old Milford Sanitary Manufacturing Company. The officers of the new company are: President, H. B. Sturtevant; vice-presi-

dent, F. G. Black; secretary, H. L. Evans; and mechanical superintendent, C. R. Walters. The company has a well equipped plant at Milford, in charge of Mr. Walters, and will devote itself to the production of high grade water closet combinations. The officers of the company report a generous supply of orders on hand, and state that an aggressive business policy looking to continued expansion has been inaugurated.

View of the new showroom of the Standard Sanitary Manufacturing Co. of Pittsburg, Pa., in St. Louis, last Tuesday. This shows a very excellent arrangement of fixtures around the supporting columns of the building and looks toward the sample bath rooms, of which there are four.

**At a meeting of the principal creditors of Andrews & Johnson Company**, of Chicago, held last week, it was found that for some time past the business of the company has not been paying and that a continuation of its business is not advisable. And it was decided by the creditors that it would be to the best interests of all that the company be placed in the hands of a Trustee for the purpose of liquidating its assets as quickly and with as little expense as possible. The officers of the company who were present at the meeting consented that this course be pursued, and an arrangement was accordingly entered into to the best interests of all concerned. A trustee was accordingly selected and put in charge of the plant and business of the company, primarily for the purpose of completing the unfinished contracts which Andrews & Johnson Company have on hand, and also for the purpose of collecting the outstanding accounts and of disposing of the company's tangible property to the best advantage. The trustee selected is James McAlear, 1209 Fisher building, Chicago, to whom creditors are requested to send their claims.

**The Annual Dinner and Meeting of the Chicago Branch of the National Metal Trades' Association** was held on Tuesday evening, March 9, 1909, at the Mid-Day Club, Chicago. Following the reports of officers, which showed the association in a most healthy condition—numerically and financially, a resolution was adopted, electing John D. Hibbard, former president of the John Davis Co., to honorary membership in the association. Mr. Hibbard had served the organization continuously for five years, two years as president, and three years as a member of the Executive Committee. The election of officers for the ensuing year resulted as follows: President, John W. O'Leary, of A. J. O'Leary & Son Co.; Vice-President, W. L. Kroeschell, of Kroeschell Bros. Co.; Treasurer, L. C Walker, of Aermotor Co.; Secretary, Paul Blatchford, 1524 Tribune Bldg., Chicago. Executive Committee: John W. O'Leary, W. L. Kroeschell, L. C. Walker, F. C. Caldwell, of H. W. Caldwell & Son Co.; Francis S. North, of Union Special Machine Co.; Staunton B. Peck, of Link-Belt Co.; Louis E. Burr, of Woods Motor Vehicle Co.; A. T. Simonds, of Simonds Manufacturing Co.; H. H. Latham, of Latham Machinery Co. The address of the evening was delivered by Professor Charles Richmond Henderson, of the University of Chicago, on the subject of "Employees' Insurance."

## Personal

**W. E. Barnes**, of the Thermograde Valve Company of Boston, Mass., was in Chicago this week in his company's interest.

**E. C. B. Judd**, of Keystone Seat fame, from Muskegon, Mich., was in Chicago this week and called on some of his friends in the trade.

**W. R. Marshall**, whose likeness is shown in the accompanying picture, has recently opened an office in Chicago as manufacturers' agent, a line in which with his popularity and extensive acquaintance in the trade he will no doubt meet with success. Mr. Marshall or "Billy" Marshall as he is better known to his large circle of friends, had his first experience in the plumbing supply line with Jas. B. Clow & Sons, Chicago, with whom he was associated thirteen years, six years as manager of their branch houses and seven years as manager of Chicago sales. After the end of this period he resigned to become vice-president of the Davies Supply Co., of Chicago, a position he held up to June, 1908, when he became connected with the Enameled Steel Tank Co., of Kalamazoo, Mich.

**W. R. Marshall**
Who has opened office as manufacturers' agent in Chicago

## New Jersey

**Mount Holly, N. J.**—Stidpole & Son have recently opened a plumbing shop at 49 Church street.

**Newark, N. J.**—Herman H. Quant has secured the plumbing contract for the residence of William H. Frey.

**Belmar, N. J.**—W. B. Crowthers has recently moved his place of business from Main street to 74 Tenth avenue.

**Trenton, N. J.**—Frank P. Riggs has recently hung out a plumbing and heating sign at 992 East State street.

**Trenton, N. J.**—Frank C. Bates, of 404 South Broad street, is doing the plumbing work in the Old Terradelphia building.

**Trenton, N. J.**—The Griner Plumbing Company is installing heating systems in three new residences on Lambertville Road.

**Asbury Park, N. J.**—J. Leonard, of 43 South Main street, will install three complete bath outfits in Mr. Price's new residence.

**Trenton, N. J.**—Wm. Crocker, of 777 East State street, has recently started work on a $600 contract of plumbing work for Joseph Burton.

**Trenton, N. J.**—A. E. Hunt, of 110 Bayard street, is finishing a $1,000 heating contract in Harry Morgan's hotel at Washington's Crossing.

**Freehold, N. J.**—Wm. Gitlin, of 29 East Main street, is installing plumbing and heating in the new country home being built by Wm. Brophy.

**Mount Holly, N. J.**—Elwood Stead, of 11 Mill street, is about ready to start work on the plumbing and heating in two new residences.

**Asbury Park, N. J.**—Joel S. Boyce, one of the city's progressive plumbers, is moving his business to new and larger quarters at 605 Main street.

**Pennington, N. J.**—J. S. Bird and company has secured a contract for a complete plumbing system in a new country residence to be erected by J. A. Kunkle.

**Trenton, N. J.**—John C. Mackey, of 403 East State street, has been awarded the contract for the plumbing and heating work at the West Morrisville lodging house.

**Toms River, N. J.**—Thos. Roberts, now in his eighty-fourth year has had to shift most of the responsibility of his business onto his son William's shoulders.

**Freehold, N. J.**—Geo. Mulholland, of 40 W. Main street, has the contract for installation of plumbing and gas system in the new residence owned by Joe Rosell on Court street.

**Mount Holly, N. J.**—Geo. D. Worrell is having his usual run of good work even though this is the slack season. He has at present underway the plumbing, heating and gas work in two houses owned by E. W. Esham.

**Perth Amboy, N. J.**—A. M. Smith & Bro., of 30 Hall avenue, have secured the contracts for plumbing the residences of the following parties: Sam Tucker, Madison avenue; Mads Christoffersen, Water street; Niels Tonnesen, Kuhland place; Walter Hoyer, Barclay street. This firm also has recently finished the plumbing in the Perth Amboy Beef House, the Henrichsen & Lauridsen paint shop and the Perth Amboy Auto Garage.

**Newark, N. J.**—The Eisner Bros. & Company, of 69 Springfield avenue, has been incorporated to conduct a plumbing and steam fitting business. The incorporators are Samuel M. Eisner, Louis Lassen and Sidney Stein.

**Asbury Park, N. J.**—Crowell & Walton, of 725 Bangs street, have the new hotel job roughed in and are now busy with fixture setting. There are thirty complete bath rooms in the hotel, and the plumbing contract amounts to about $6,000.

**Riverside, N. J.**—E. A. Rogers has purchased B. C. Bishop's plumbing and heating establishment located at 17 Scott street. Mr. Rogers is a practical man along plumbing and heating lines and has a very bright outlook for a good season's work.

**Woodstown, N. J.**—T. H. Wright is taking up the plumbing and hot water heating business in connection with his hardware store. He has placed the plumbing and heating business in charge of a practical man who will give that department his entire attenion.

**Princeton, N. J.**—J. R. Whyte, Jr., successor to McCreamor Whyte & Company, is just giving the University contract its finishing touches. The contract consisted of complete plumbing in the Palmer Labora-


BLANK FOR

**Report of an Award of Heating or Plumbing Contract**

(Cut out, fill in and mail promptly)

DOMESTIC ENGINEERING
Chicago

We have been awarded the contract for

_____
plumbing or heating

the _____, the
kind of building

amount of the contract being $_____

Owner's name _____

Address _____

Architect's name _____

Address _____

General Contractor's name _____

Address _____

Our own name _____

Address _____

tory of Physics. One hundred and eight porcelain fixtures are used on the job.

**Asbury Park, N. J.**—Chas. C. Hurley is doing the plumbing work in the new addition to the Fifth Avenue Hotel. The work consists of 22 fixtures. He also has the plumbing work in the 16 houses, known as the French Colony at Allenhurst. One hundred and twelve fixtures will be used on the Colony job.

**O. T. Carson.**

## Pacific Coast

**Livingston, Mo.**—Theo. A. Harker, of 211 South Main street, has secured a nice contract for plumbing at the Electric Hot Springs, Mont., amounting to $10,000.

**Los Angeles, Cal.**—Blumve & Jay were the successful bidders on the large contract for plumbing and sewer work in the new county hall of records that is soon to be erected here. The consideration is $20,937.

**San Francisco, Cal.**—The Lennig-Rapple Company, of 1402-1406 Call building, has been awarded the contract for the heating of the new six-story building which Crane Co. is erecting at First and Howard streets in this city. The consideration is $12,000.

**San Francisco, Cal.**—The John G. Sutton Company will shortly commence the installation of a steam heating system in a building now in course of construction at the corner of O'Farrell and Stockton streets. Flood & Hammond have just been awarded an important plumbing contract by Charles Wright who is building at Pine and Taylor streets. The contract calls for the expenditure of $6,300. J. M. Lettich has contracted to do the plumbing for Elizabeth Wreden in a three-story building on Greenwich street near Taylor for $1,924.

**San Francisco, Cal.**—Within the course of the next few months there will be considerable work done on municipal buildings in the city and some plumbing contracts along this line have already been let. Alexander Coleman has recently secured the contract for installing the plumbing and gas-fitting in the new Madison school building here for $4,171. There is considerable heating and ventilating work to be done in this structure and bids are now in the hands of the Board having the matter in charge but the awards will not be announced until the bids have been gone over by the city architect. The shop of Alexander Coleman continues to be a busy place and from all appearances will be so for some time. The plumbing work in a large building at the corner of Powell and Ellis streets will commence within a short time. This is a $8,885 contract. The Robert Dalziel, Jr., Company has just been awarded the contract for installing the heating ventilating plants in the Liebes & Co. building that is being erected on the site of the old Liebes building on Post street near Grant avenue. The work is to cost $6,187.

**San Francisco, Cal.**—Clear weather is still prevailing in this city and practically all the local journeymen plumbers are busy on the rush work that is being offered. The bulk of the operations are confined to the downtown district north of Market street in what is to be the choice retail district but within a very short time most of this work will be finished and then operations will commence in the outlying districts. In spite of the agitation regarding an amendment to the building laws whereby the fire limits in the north of Market section would be narrowed down or different types of buildings allowed nothing has been done and but little building is being done in the district affected. The result is that work outside of these limits is going ahead much more rapidly than it is just inside the lines established and there are many eyesores in the shape of unimproved lots to attract the attention of visitors. It is felt, however, that something will soon be done so that the work of improving these lots at a moderate expense can be commenced and plumbers are expecting a continuance of the present heavy amount of work for many months to come. A very satisfying indication that there are better times in store for the average plumber is now presenting itself, according to some of the leading members of the trade, in the lower prices for material that are now in vogue. It is not felt that contractors will make the same reductions in their estimates that is to be noted in the matter of material for they all realize that their figures in the past have been on too small a margin. For some time after the reduction on pipe was to be noted from the prices quoted by manufacturers the same rates as formerly were charged by most jobbers here. However, now that it has become apparent that the reductions will probably hold good the local dealers have reduced their rates in sympathy. This reduction in price has already made its effect felt in an increased consumption and some heavy shipments are now going forward to outside districts. The plumbing trade will profit by this to a considerable extent, especially in regard to contracts figured on and secured while the old prices were in vogue.

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### NO USE IN FRETTIN'.

When you go on gettin' troubled, an' the world seems upside down,
When misfortune stares upon you, with an awful looking frown,
There's a cheerfulness in knowin', when it's dark for me an' you,
That the sun is always shinin', an' the sky is always blue.

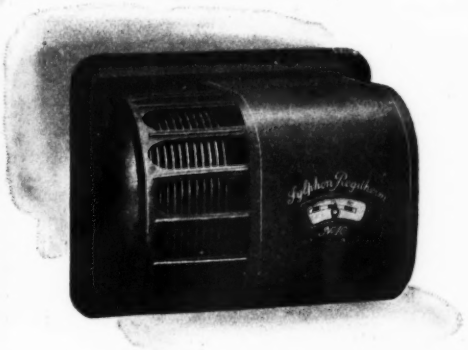
When the clouds appear the thickest an' the daylight seems withdrawn,
An' the hopeful joy o' livin' seems to be entirely gone,
Just remember, when the darkest, just a little distance through,
That the sun is always shinin', an' the sky is always blue.

So there ain't no use in frettin' at the hardships that we meet,
For the birds are still a-singin', an' the flowers are just as sweet;
An' behind the deepest shadow there's a heap o' promise, too,
For the sun is always shinin', an' the sky is always blue.

—N. Y. Telegraph.

# Aids to Ideal Heating.

A good regulator on the boiler is about as necessary to the success of a steam or hot water heating job as a chimney is to a house—it may not do the heating, but it helps the fire do it. By a GOOD regulator we mean, of course, an IDEAL Sylphon Damper Regulator.



IDEAL Sylphon Regitherm

The IDEAL Sylphon line includes —as well as the IDEAL Sylphon Damper Regulator for Steam Boilers, the IDEAL Sylphon Damper Regulator for Water Boilers and Tank Heaters—the IDEAL Sylphon Regitherm, an automatic temperature regulator which is unlike, and better than, any device ever made for a similar purpose,

Write for booklet.

AMERICAN RADIATORS & IDEAL BOILERS

## AMERICAN RADIATOR COMPANY

**General Offices, 282-286 Michigan Ave., Chicago.**

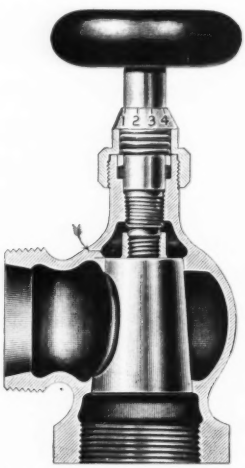
| | | | | | |
|---|---|---|---|---|---|
| New York | Cincinnati | Cleveland | Atlanta | Brantford, Ont. | Denver |
| Philadelphia | Boston | Milwaukee | Minneapolis | Seattle | St. Louis |
| Pittsburg | Buffalo | Indianapolis | Kansas City | Omaha | San Francisco |

# With the Makers

**The Lavigne Low Pressure Steam Radiator Valve.**

The Lavigne Manufacturing Company, of Detroit, Mich., has recently placed on the market a line of low pressure steam radiator valves which have attracted considerable attention when shown to members of the heating trade. These valves are made in two styles, with bell shaped body and with globular body. The shells, stems and packing arrangements are the same in both, the only difference being in the bodies of the valves. In a folder which was issued last week by the manufacturer these valves are described as being "particularly well adapted for use in connection with those vapor heating systems that do not require the employment of packless valves. They are provided with an automatic packing arrangement consisting of a packing nut which screws to a shoulder on the bonnet, a spring and a follower gland. The packing is placed in a recess between the bonnet and the stem and is held in place by the follower gland on which rests the spring which also bears against the inner upper surface of the packing nut. This arrangement insures against leakage around the stem as the packing is kept continuously compressed, and any wear or shrinkage in it is automatically taken up. A one-half turn of the handle suffices to fully open or fully close these valves, and the amount of steam to be admitted to the radiator can be intelligently regulated by means of the graduations on the upper semi-circular arc of the packing nut. A vertical line is marked on the stem, and as this line registers with the marked graduations it indicates which part of the valve area is open. When the vertical line is at 0, for instance, the valve is fully closed, while when it is at 5, it is wide open. Another marked advantage of these valves is the fact that they close very tightly. It will be noticed that the shell, by means of which the valve is opened and closed, is of conical shape and that on account of the left hand thread on the stem this shell is drawn upwards at the same time it is revolved to close. In the sectional illustration, showing the valve wide open a horizontal line is shown on a level with the shoulder of the shell. When the handle is given a half-turn to the right to close the valve the shoulder of the shell will be drawn upwards to a level with the line indicated by the arrow. This feature in itself insures an extremely tight joint, and as in addition to this the shell is carefully ground in, like a steam cock, it makes a perfectly tight seat against low pressure steam. It will also be noted that a right hand thread is cut on the lower end of the stem and that this thread engages with the upper part of the shell. As a result of this double thread arrangement, the first portion of the reverse turn of the handle serves to push the disc downwards and release it, so no matter how tightly the valve may be closed it can be very easily opened." The manufacturer will be glad to send interested parties full particulars upon request, mentioning "Domestic Engineering."

The Lavigne low pressure steam radiator valve with globular body.




Sectional view of the Lavigne low pressure steam radiator valve.

The Lavigne low pressure steam radiator valve with bell shaped body.

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**She Lived in Pittsburg, Too.**

It was her first ball game. She lived in Pittsburg, too. Yet there she sat in the crowded grand stand, gazing out at her home team battling against the Chicago Cubs for the pennant.

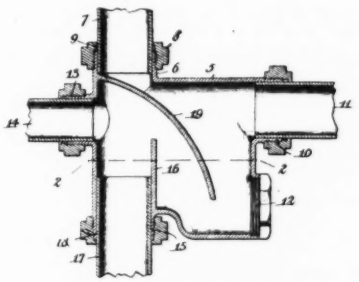
"Harry," she inquired, during a lull in the excitement, "which is the great Wagner?"

Her escort gallantly pointed out the famous Pittsburg shortstop.

"My!" exclaimed she, after scanning Honus's bow-legged figure awhile, "who'd ever think that man could write operas!"—"The Circle."

## Patents

913,221. **Trap.** George O. Miller, North Tonawanda, N. Y., assignor to Louis A. Kelsey, North Tonawanda, N. Y. One of the two claims made for this invention reads as follows: "A trap consisting of a casing having an inlet at one end, an overflow inlet in its upper wall, an outlet in its lower wall, a vertical trap-partition extending inward from said outlet, a concavo-



convex trap-partition between said inlets and said outlet and having its convex surface facing said inlets and its concave surface facing said outlet, and a pipe entering said outlet and having a range of adjustment from said outlet to the inner end of said vertical partition."

913,776. **Flush-Meter.** Abraham Simons, Schenectady, N. Y.

913,808. **Flush-Tank Supply Valve.** James S. Caldwell, Kansas City, Mo., assignor of one-half to Frank M. Jackson, Kansas City, Mo.

913,827. **Process of Purifying Water.** Henry Korten, Chicago, Ill., assignor to Frederick Y. Nichols, Chicago, Ill.

913,832. **Water-Heating Apparatus.** Francis E. Lyon and Thomas H. Hickok, Omaha, Nebr.

913,866. **Valve.** John A. Wolcott and Theodore C. Schwartz, Wyandotte, Mich.

913,949. **Filling-Valve.** Edward E. Gold, New York, N. Y.

913,950. **Coupling.** Edward E. Gold, New York, N. Y.

913,963. **Boiler-Flue Cleaner.** Samuel H. Limbert, Springfield, Ohio, assignor of one-half to Charles E. Brening, Springfield, Ohio.

913,968. **Piston-Valve.** Johnston Nolan, Philadelphia, Pa.

913,995. **Wrench.** Sanford S. Vaughan, Chicago, Ill., assignor to Vaughan & Bushnell Manufacturing Company, Chicago, Ill., a Corporation of Illinois.

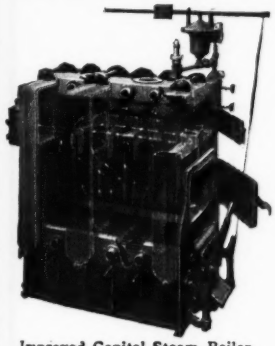
914,011. **Flushing-Tank.** William F. Adams, Milwaukee, Wis.

914,066. **Sewer-Trap.** Ben Oakes, Detroit, Mich.

914,068. **Automatic Flushing Apparatus for Water-Closets.** William H. Osborn, Southern Heights, Ky.

914,069. **Faucet Valve.** Gustav Peileke, Chester, Pa., assignor of thirty one-hundredths to Joseph J. Mc-


# A FACT WORTH KNOWING



Improved Capitol Steam Boiler showing construction, fire travel and waterways.

One of the features of the **Improved Capitol Boilers** is the **quick action** secured. This is caused by the waterways that extend inwardly towards the fire. The shape and arrangement **compels** them to absorb the heat. The fire entirely surrounds these waterways and therefore quick action is secured. That's why you never hear the word "sluggish" in connection with

CAPITOL BOILERS

This one point puts the **Capitol Boiler** in class by itself. Well worth remembering when you talk "heat" to a prospective customer.

## United States Heater Company.

General Offices and Works: Fort St. and Campbell Ave., DETROIT, MICH.

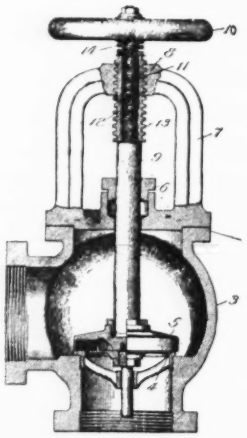
| Branches: | | Sales Agencies: |
|---|---|---|
| DETROIT | 139 Jefferson Ave. | NORFOLK & RICHMOND, VA., Virginia-Carolina Supply Co. |
| NEW YORK | 129 Worth St. | MINNEAPOLIS, MINN., Plumbing & S. F. Supplies Co. |
| CHICAGO | 34 Dearborn St. | ST. LOUIS, MO., L. M. Rumsey Manufacturing Co. |
| KANSAS CITY | 120 W. 11th St. | DENVER, COLO., Kellogg & Stokes Stove Co. |
| OMAHA | 916 Farnam St. | |

Laughlin and twenty one-hundredths to Cornelius Broich, Crum Lynne, Pa.

**914,067. Water-Closet Flushing Apparatus.** William H. Osborn, Louisville, Ky.

**914,090. Garbage-Drainer for Sinks.** James Tyll, Toledo, Ohio.

**913,960. Valve Device.** Charles Kroeschell, Chicago, Ill., assignor to Kroeschell Brothers Company, Chicago, Ill., a Corporation of Illinois. The claim for this interesting invention is as follows: "A valve-device comprising, in combination, a casing containing a valve-seat and provided with an exterior sleeve-bear-




ing having an internal coarse screw-thread, a valve in the casing provided with a rotatable stem having a reduced section with a fine screw-thread upon it and extending through said bearing, a handle on the outer end of the stem, a sleeve about said reduced stem-section having a fine internal screw-thread engaging with that on the stem and a coarse external screw-thread working in said bearing, and a coiled spring confined about the stem between said wheel and sleeve and forming a yielding union between the stem and sleeve, for the purpose set forth."

**914,200. Range Water-Heater.** Louis Stockstrom, St. Louis, Mo., assignor to American Stove Company, St. Louis, Mo., a Corporation of New Jersey.

**914,209. Radiator-Valve.** Frank L. Watson, Lynchburg, Va.

**914,250. Pipe Connection for Gas-Meters.** Adam Ehebald, New York, N. Y.

**914,288. Gas-Heater for Water-Backs.** Edward M. Kennard, Baltimore, Md.

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### Engine Does Service as House Heating Boiler.

The Pennsylvania Railroad is now putting one of its locomotives to other uses than hauling cars. A locomotive has been run on a switch close to the Nescopeck passenger station at Wilkes-Barre, Pa., where the heating apparatus is being repaired, and by means of a connection leading from the main pipe of the locomotive boiler the station and the freight house are now kept well heated, says a despatch to the Philadelphia North American.

### Female Economy.

United States Marshal Henkel had completed in New York the sale of thousands of dollars' worth of Paris gowns smuggled unsuccessfully in by women.

"It is poor economy, this smuggling this saving of the legal duty," Marshal Henkel said. "Poor economy, foolish economy. It reminds me of a Philadelphia woman.

"Worn out by the winter's gayeties, this Philadelphia woman went to Atlantic City to pass Lent restfully. She departed in a very weak, run-down condition, and her husband was dreadfully shocked, yet not incredulous, either, when he received one day this wire:

"'Come down to Atlantic City at once; I am dying —Helen.'

"The wretched man slammed down the lid of his desk, grabbed his hat and reached Atlantic City by the first express.

"In a ravishing toilet his wife was at the station to meet him with the hotel motor 'bus.

"'But—but,' he stammered, 'what did you mean by that telegram about dying?'

"'Oh,' she exclaimed laughing, 'I wanted to say that I was dying to see you, but my ten words ran out, and I had to stop.'"

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**Burlington, Iowa.**—The Russell Sewage Disposal Company, of this city, has installed its sewerless sewage disposal system at Edson Smith's handsome residence at Elmwood, Ill.—Adv.

**No More Cracked or Split Seats and Tanks**

There is no longer any need of using seats and tanks which will go to pieces in a short time. **J-M Sanitor Seats and Tanks** will last almost as long as the building in which they are installed. Many articles made of the same material used in these Seats and Tanks are about as good as new today after thirty years' service.

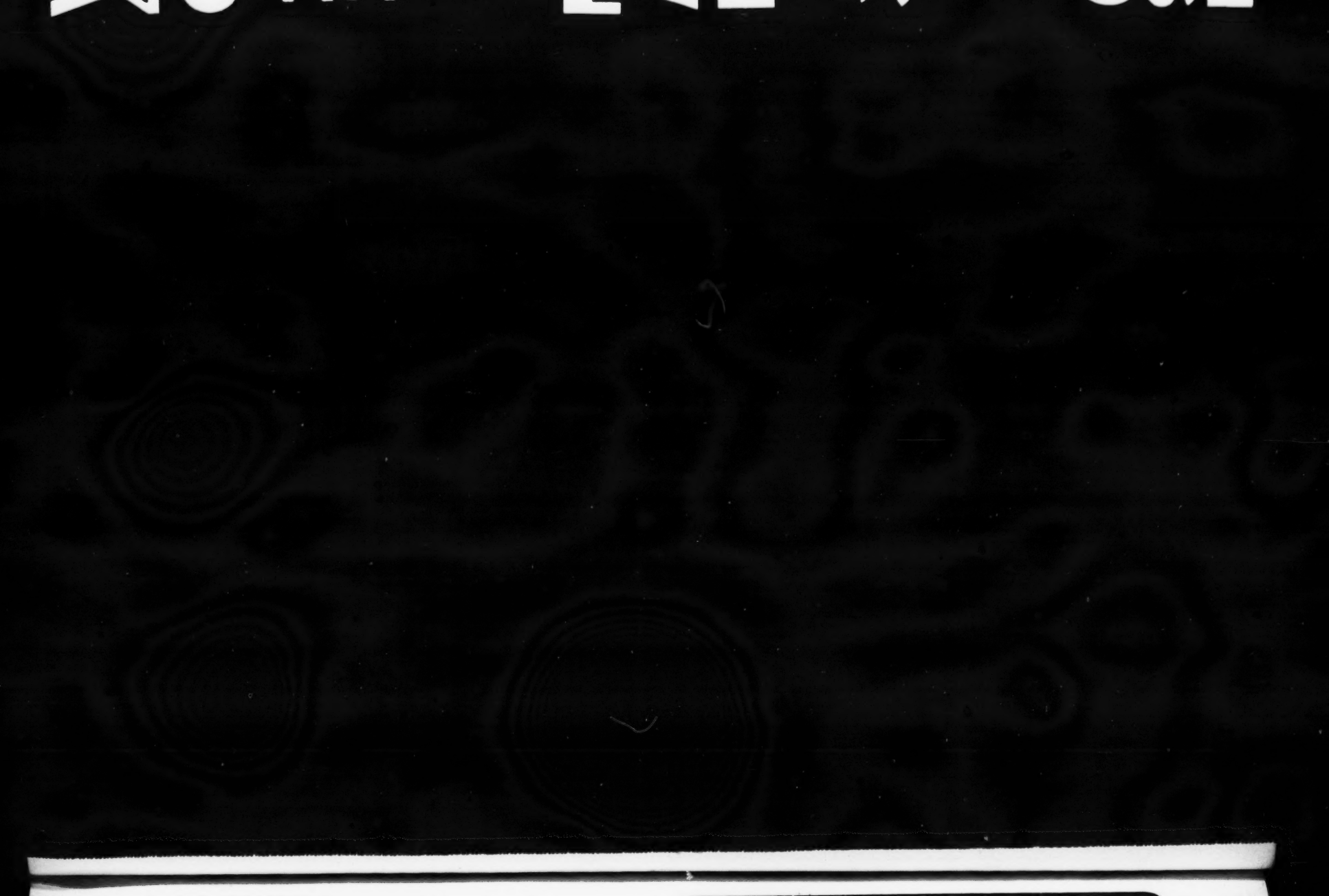
**J-M SANITOR**
(One-Piece)

Seats and Tanks are moulded in one piece, therefore have no joints to become unglued. Moisture, heat or urine cannot affect this material. It is warranted not to crack or split. It is hard and smooth. No lining is required in the tanks. Being non-absorbent, they will not warp, swell or shrink and throw the inside fittings out of adjustment.

Furnished complete, with all fittings, in Mahogany, Oak or White Enamel. Only an expert can detect them from wood.

**Write Nearest Branch for Prices and Further Particulars**

**H. W. JOHNS-MANVILLE CO.**

New York, Milwaukee, Chicago, Boston, Philadelphia, St. Louis, Pittsburg, Cleveland, Buffalo, Detroit, Baltimore, New Orleans, Kansas City, Minneapolis, San Francisco, Los Angeles, Seattle, Dallas, London

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